Town of Ellington

Emergency Services Evaluation

Emergency Services Consulting inc.

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Emergency Services Evaluation

Ellington, CT

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EXECUTIVE SUMMARY

Purpose of this Report

This evaluation of the emergency service agencies in the Town of Ellington, CT is offered in response to a request from the Town Board of Selectmen. The request is to review and analyze the current delivery of emergency services to the citizens of the Town, and to assess the future needs of the departments as growth in the community continues.

ESCi wishes to thank the staff and elected officials of the Town, as well as each of the agencies studied, for the excellent cooperation we received. All involved were candid in their comments and provided a large amount of information and data in a short amount of time.

Methodology

The approach used by ESCi in performing the evaluation includes utilization and analysis of statistics, review of documents, interviews with key staff and various agency representatives, and direct observation of facilities and apparatus. Information was collected on a variety of topics of importance on providing quality fire and emergency services.

This information was used to develop specific recommendations for the Town and its departments. The recommendations represent opportunities to improve the quality of service provided to the community.

Contrary to popular belief, these types of evaluations are not normally conducted on organizations that are suffering serious problems. Instead, evaluations of this type are primarily directed at organizations that may be experiencing growing pains or are looking for creative and innovative ways to handle the challenges of the future. Such is the case for the agencies of the Town of Ellington.

Background Information

This report includes a detailed review of the Ellington Volunteer Fire Department, the Crystal Lake Volunteer Fire Department and the Ellington Volunteer Ambulance Corps. The evaluation is arranged by the ten survey objectives shown below:

- Organizational overview
- Management
- Planning for fire and emergency services
- Risk Management
- Personnel management

- Staffing
- Capital improvement and replacement programs; facilities, apparatus, and equipment
- Delivery system
- Training program
- Fire prevention program

The criteria used to evaluate the department have been developed over many years. These criteria include relevant National Fire Protection Association standards, national accreditation criteria, health and safety requirements, federal and state mandates relative to fire protection and emergency medical services (EMS), fire protection standards of the property insurance industry, and generally accepted practices within the fire and emergency services.

Each survey objective provides the reader with general information about that element, as well as specific observations and analysis of any significant issues or conditions that are pertinent. Observations are supported by data collected as part of the survey and interview process.

Finally, specific recommendations are included to resolve identified issues and concerns or to take advantage of opportunities that may exist.

Summary of Significant Recommendations

The significant recommendations developed as a result of this evaluation include the following. A list of all recommendations can be found in the back of this report.

- **Complete the development of a comprehensive Customer Centered Strategic Plan for each department and consider conducting the strategic planning in a consolidated effort with all three agencies in order to develop cooperative and coordinated visions and goals**
- **Consider the establishment of a consolidated three-agency policy committee to develop consistent policies on all common subjects among the three departments, leaving only individual station and apparatus procedures to be developed separately**
- **Consider the establishment of a Town Emergency Services Advisory Committee to provide customer input into the emergency services planning processes**
- **Adopt a basic service philosophy and response time performance standard for the Town of Ellington**
- **Develop and adequately fund a long-range facilities management plan in accordance with recommendations for projected service delivery**
- **Immediately initiate first-response agreements or contracts for closest unit dispatch from Vernon stations to areas east of Windermere Avenue and south of Lower, Middle, and Upper Butcher Roads to provide initial response for all call-types. These facilities are better located to serve these areas of the Town**
- **All future facilities should be developed to include provision of all emergency services, including fire, EMS and, where appropriate, law enforcement. Redundancy of facilities should be considered unacceptable**
- **Deploy an additional facility in the southwestern area of the Town, selecting between recommended Strategy "A" or "B" only after close consultation with Town Planners and local developers to determine growth trends**
- **Consider initiating the road extensions recommended in Strategy "C" in order to facilitate future efficiency and effectiveness of a northern facility**
- **Consideration should be given to placing a transport ambulance at CLVFD for use by the EMT's at that department**
- **Consider a reduction of the fleet by combining missions and relocating equipment from multiple specialty/utility vehicles**
- **Consideration should be given to initiating improved water shuttle planning and practice**
- **Use of more efficient shuttle tankers should be considered over larger pumper-tankers**
- **Consider the initiation of Strategy "C" station deployment for a point in the future, to be determined by continuing development and increased service demand**
- **Plan for the eventual renovation or addition to the existing facilities to provide for optimum housing conditions for 24 hour staffing, providing the option to do so on a regular or occasional basis with either volunteer or paid personnel**
- **If daytime staffing performance decreases and increased daytime volunteers cannot be successfully recruited, consider increasing the use of automatic aid and dual response**
- **Establish performance evaluations for all personnel, both paid and volunteer, in each agency.**

- **Provide regular medical evaluations and examinations of all emergency service personnel that meet the recommendations of NFPA 1582**
- **CLVFD and EVAC should obtain commercial software designed for the purpose of collecting and analyzing emergency service records and reports**
- **Specify a standardized operational and financial report to be submitted monthly by each agency**
- **Conduct an annual audit within each agency, contracted to an external professional**

FIRE DEPARTMENT EVALUATION

Objective One – Organizational Overview

The Ellington Volunteer Fire Department (EVFD), Ellington Volunteer Ambulance Corps (EVAC), and the Crystal Lake Volunteer Fire Department (CLVFD) are independent private corporations that provide a portion of the emergency services to the Town of Ellington, Connecticut. Each of the three participates in a contractual agreement with the Town to provide specific services within a specific geographic area in return for tax-generated funding.

The emergency services system in the Town is a balance of four different entities working in cooperation. EVFD provides fire suppression in the western section of Ellington and assists in the provision of emergency medical services when requested. CLVFD provides fire suppression and an initial tier of emergency medical response to the eastern portions of Ellington known as the Crystal Lake community. EVAC provides basic life support (BLS), emergency medical response and transport services throughout the entire Town. Finally, a separate private, for-profit EMS provider responds with advanced life support (ALS) paramedic-level services when the patient condition warrants it. Our study will primarily concentrate on the contractual, not-for-profit entities of EVFD, EVAC, and CLVFD.

EVFD provides fire suppression services to a population of 11,397[1] in an area of 25 square miles. CLVFD provides fire suppression and first responder EMS to a population of 1,524 in an area of nine square miles. EVAC serves the entire Town, a population of 12, 921 in 34.06 square miles. These services are provided from three facilities, one per agency, located within the Town. Collectively, the departments maintain a fleet of vehicles including six fire engines, one tanker, two heavy rescue trucks, two ambulances, two wildland firefighting vehicles, and four specialty/utility vehicles utilized for towing, personnel transport, or light rescue work.

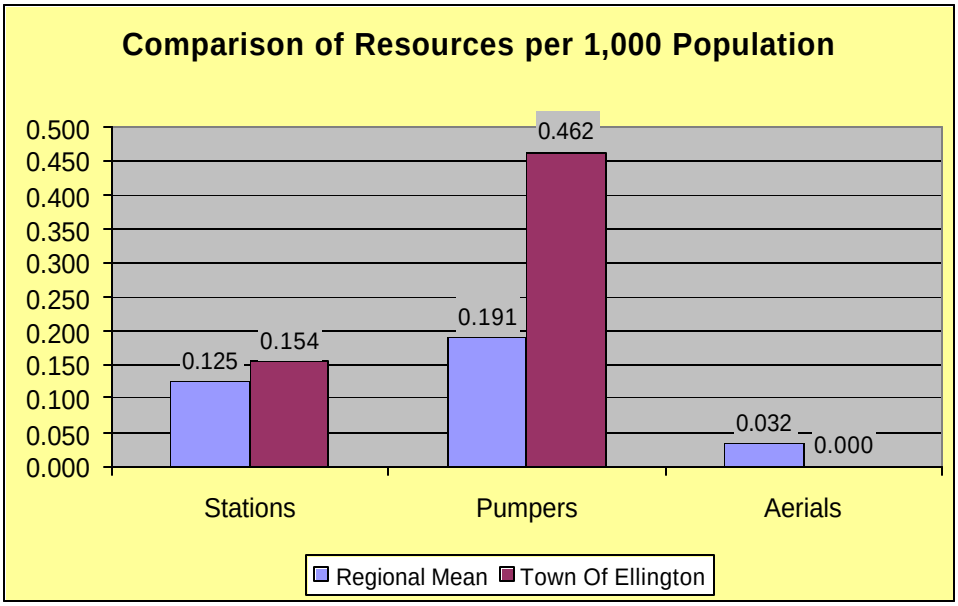
There are 121 individuals[2] involved in delivering these services to the Town. EVFD serves its customers with 45 volunteer personnel. CLVFD currently has 26 volunteers. EVAC utilizes 44 volunteers and 10 part-time employees. Primary staffing coverage for fire response during all weekday, weeknight, and weekend hours is provided on an on-call basis by the volunteer responders, while primary staffing coverage for EMS response during weekday hours is provided through the use of part-time employees.

[1] Includes Census Tract 5351, and blocks 1000-1019, 3000-3029, 4005-4006, and 4019-4024 of Tract 5352

[2] Current number at time of field research

Figure 1 provides an overview of the Town of Ellington's fire suppression resources and compares these with the average rate of resource allocation in other communities of similar size within the northeastern region of the United States.[3] The chart demonstrates that Ellington has a comparable allocation of fire stations. The Town does not have an aerial device, which places it lower than the regional mean, but this figure itself is extremely low because many other communities of this size also do not have aerials. One comparison that does stand out is the allocation of pumpers, which is more than twice the regional mean. However, it should be remembered that much of Ellington is without pressurized water hydrants. This typically requires a higher number of trucks to both transport and pump static water sources. Further discussion regarding the number of pumpers, and the possible redundancy of these resources, can be found in later sections of this report.

Figure 1: Resource Allocation Comparison



Both fire departments provide a variety of services including fire suppression, victim rescue, operations-level hazmat response, and public fire safety education. A Hazardous Materials Response Team within the region provides technician-level hazardous materials emergency response service.

The Tolland County Mutual Aid communications agency provides emergency call receipt and dispatch service through a contract with the Town. Enhanced-911 telephone service, computer-aided dispatch, and a multi-channel radio system are in place.

[3] Data taken from the National Fire Protection Association "U.S. Fire Department Profile", December 2002. This publication breaks down benchmark data into four regions: Northeast, Northcentral, South, and West. Northeastern regional data was selected for this report.

Responsibilities and Lines of Authority

The Town of Ellington contracts with the two fire departments involved in this study for the fire protection services which the Town is authorized to provide under state law and its own charter. The fire departments, through their articles of incorporation, are private not-for-profit organizations assembled for the purpose of providing this protection.

This sort of relationship is not uncommon for smaller communities. It typically arises out of an evolutionary process of sorts, in which private citizens band together to fill the need for fire protection long before the government entities involved officially adopt it as a municipal service. Over time, as more extensive funding is sought, the independent fire departments seek financial support from the municipality. In turn, the town involved typically adopts the provision of fire protection into their municipal charter (if not already present) in order to create the authority necessary to levy taxes for the purpose of providing such service. Having done so, they often enter into contractual relationships with the private citizen groups that have been providing these services to continue doing so, but with the support of tax dollars. These relationships may continue for years without much change.

While the process described above essentially describes the history of the EVFD, a somewhat unusual twist to this evolution occurred in the Crystal Lake area of Ellington. Initially, the citizens of that community initiated the formation of the Crystal Lake Fire District, as a potential source of tax revenue. In Connecticut, as in many states, a fire district may be formed for the primary purpose of levying taxes for fire protection in lieu of a municipality doing so. Often, this occurs when fire protection costs necessitate public funding, but no municipality exists that can accommodate this. When this occurs, the responsibility for fire protection, as a matter of law, is usually placed within the authority of the fire protection district. Oddly, though, the Crystal Lake Fire District never initiated its own tax levy and does not currently produce tax revenue for fire protection. The request for CLVFD's share of the operating levy of the Town of Ellington is directed through the Crystal Lake Fire District board and is disbursed to the fire department under the District board's oversight.

What is not completely clear is where the final authority for the provision and direction of fire protection stands in the Crystal Lake Fire District. The operating dollars come to the Fire District through the general operating levy of the Town, so apparently the Ellington charter is believed to contain authority for providing fire protection to areas of the Town that fall within the Crystal Lake Fire District. However, the authority of a Fire District typically stands until that District is dissolved. We questioned whether both authorities could continue to exist. In other words, if the Crystal Lake District is the sole authority over fire protection in that area, does the Town of Ellington have any charter authority to tax its residents for fire protection in Crystal Lake? If, on the other hand, the Town of

Ellington has charter authority to tax for fire protection throughout the entire Town, then would the Crystal Lake Fire District continue to have authority over the fire protection that is being provided under another taxing authority's charter?

Since this arrangement is many years old, it is extremely difficult to find documents supporting the arrangement or to confirm when, or by whom, they were confirmed as proper. While we are in no way suggesting that the issue has resulted in any compromises to service whatsoever, it is within the scope of this study for the consultants to point out discrepancies in the authority to provide and direct those services. Issues regarding the authority and governing of an organization often cause no daily operational problems because experience and tradition tend to rule. However, when an organization faces tumultuous times, such as a legal claim or other civil action, these issues become critical. For this reason, it is imperative that the lines of authority be clearly acknowledged uniformly throughout all establishing documents. Thus, we would recommend that this working relationship be revisited and confirmed as proper and correct. At the least, it would be reasonable to update the description and understanding of the distribution of legal fire protection authority in the Crystal Lake Fire District in written form in order that all may move forward with a common understanding.

At any rate, the Crystal Lake Fire District board, with apparent agreement of the Town of Ellington, has chosen to utilize the services of CLVFD to provide its fire protection services and that arrangement continues today.

The Ellington Volunteer Ambulance Corps is also a private, not-for-profit corporation that has achieved legal authority through the State of Connecticut to provide emergency medical response and transport to all areas within the Town of Ellington. The Town supports this effort through the provision of tax dollars to EVAC from its general operating levy, thus assuring that the service continues to be available to its citizens. Both the EVFD and CLVFD are also recognized as medical responders in a non-transport capacity, with CLVFD holding a certificate of authority as an initial response agency in the Crystal Lake area.

Each agency's independent articles of incorporation are in order and appear to provide the necessary legal authority and grounds for providing their services. Required by-laws are in place to internally govern the corporations and appear to be in keeping with the requirements of the Internal Revenue Service requirements for 501(c3) organizations[4].

[4] Disclaimer: this review is not intended to be, nor should it be construed as, a legal or financial audit for IRS compliance purposes.

Recommendation

- Review and, if necessary, revise the legal authorities, charters, and documents of the Town of Ellington and the Crystal Lake Fire District regarding the provision of, and taxation for, fire protection in order to ensure that lines of responsibility and authority are clear and understood by all.

Foundational Policy

EVFD maintains one primary policy book, a document pertaining to the efficient operation of the fire department. The book contains a broad collection of rules and procedures spanning both administrative and operational issues. It provides not only the organizational policies, but also rules and regulations for conduct and standard operating guidelines.

CLVFD also provides standard operating guidelines for its members, but overall administrative policies are not as concise and organized. Policies, rules and regulations must be sought out from various sources, including the department by-laws, a document intended for establishing management of the corporation and one ill-suited for guiding personnel and operations.

EVAC provides its members with a department policy manual that contains all pertinent sections guiding administrative procedures, personnel rules and regulations, medical protocols and reporting methods. The book is well-written and thoroughly indexed.

Each agency has numerous sections of their policies that are in common with each other. With the exception of procedures related to agency-specific apparatus, structures and hazards, many of the policies could be virtually identical. Yet, each agency commits significant resources to redundant development of common policy. It is likely that a consolidated or cooperative policy committee, formed with representation from all three departments, could eliminate redundant development and encourage policies that are common and consistent throughout the Town's emergency services.

A comprehensive set of departmental operating rules and guidelines should contain at least two primary sections. The following format is suggested.

1. Administrative Rules – This section would contain all of the rules that personnel in the organization are required to comply with at all times. Administrative Rules, by definition, **require** certain actions or behaviors in all situations. The Department Board should adopt or

approve the Administrative Rules since the chief is also subject to them. However, the Board should then delegate authority to the chief for their enforcement on department personnel. The Administrative Rules should govern **all** members of the department: paid, volunteer and civilian. Where rules and policies, by their nature, require different application or provisions for different classifications of members, these differences should be clearly indicated and explained in writing. Specifically the Administrative Rules should contain sections which address:

- Public records access and retention
- Contracting and purchasing authority
- Safety and loss prevention
- Respiratory protection program
- Hazard communication program
- Harassment and discrimination
- Personnel appointment and promotion
- Disciplinary and grievance procedures
- Uniforms and personal appearance
- Other personnel management issues

2. Standard Operating Guidelines (SOG's) – This section should contain "street-level" operational standards of practice for personnel of the department. SOG's are different from Administrative Rules in that variances are allowed in unique or unusual circumstances where strict application of the SOG would be less effective. The document should provide for a program of regular, systematic updating to assure it remains current, practical and relevant. SOG's should be developed, approved, and enforced under the direction of the Fire Chief.

The Town of Ellington maintains strict guidelines and policies for financial procedures involving tax funding provided by the town. These are developed and enforced by the Town Selectmen and Board of Finance. Procedures call for the use of purchase orders and proper assignment of appropriation numbers prior to invoice payment. Appropriate systems are in place for both security and integrity.

Financial controls for funds not received through the Town differ slightly from department to department. Each agency indicated that they follow reasonably standard procedures for purchasing and accounting. However, these systems are not necessarily articulated in written policy that members can identify and reference efficiently.

EVFD contracts for an external audit to be performed annually, while CLVFD conducts only a basic audit with an internal committee. CLVFD has no standard schedule or methodology for internal or external audits. The failure of non-profit corporations to conduct annual external audits is unwise and has led to numerous financial disasters. The process is fairly simple and cost-effective in terms of financial security.

Recommendation

- Consider the establishment of a consolidated three-agency policy committee to develop consistent policies on all common subjects among the three departments, leaving only individual station and apparatus procedures to be developed separately.
- Complete any necessary revisions of a comprehensive set of Administrative Rules and Policies for all departments.
- Revise and publish thorough financial policies for non-tax funds. Obtain legal counsel review of these prior to adoption.
- Conduct an annual audit within each agency, contracted to an external professional.

Organizational Structure

A well-prepared organizational chart should reflect the efficient assignment of responsibility and authority, allowing the organization to accomplish effectiveness by maximizing distribution of workload. The lines on an organizational chart simply clarify accountability, coordination and supervision. A review of each agency in this study reveals that they are organized in a typical top-down hierarchy.

EVFD has an organizational chart indicating lines of authority as well as roles and responsibilities. In EVFD's organizational chart, the lines are complicated and difficult to follow. A new member or someone not familiar with the traditions of the department might have difficulty determining who reports to whom. The chief executive officer (Fire Chief) appears to directly supervise three other individuals, along with up to six formal committees and four work groups.

CLVFD's chart was provided, however it resembles a simple chain of command with little overall organizational design. During interviews, the organizational structure was described as relatively flat, with virtually every member reporting directly to the Chief. This often results from inadequate definition of roles and responsibilities, or the unwillingness of members to clarify the level of accountability expected from each officer or program director.

EVAC did not provide an organizational chart for review. As in the case of CLVFD, it appears to be a relatively flat structure. Eight board members report to the President and most members take direction from him as well.

Only in the case of EVFD do operating divisions exist with reasonably specific roles and responsibilities. In all three agencies, however, workload and responsibility is often shared across

division and position boundaries in response to which individuals have the necessary time to commit to organizational goals. Often, the result is individuals performing work or accepting assignments that would normally be considered outside the scope of their position. This can be an effective means of accomplishing tasks, provided it does not disrupt organizational structure and chain of command.

Job descriptions for some officer positions are located within the various policy documents, typically the by-laws, but appear to be somewhat out of date. Not all positions within each department have corresponding job descriptions.

In each fire department, the Fire Chief is the designated personnel authority for all department personnel. EVAC's Department President fulfills this role.

Recommendation

- Organizational charts should be revised and clarified. EVFD should simplify the demonstration of accountability and communication while CLVFD needs to reconsider the efficient and effective distribution of responsibility. EVAC should provide and maintain an up-to-date organizational chart as part of its policy documents.
- Each agency should complete full job descriptions for all positions, with minimum requirements clearly identified. Establish a system for regular updating.

Maintenance of History

Each agency has some level of history retention program in place. Both EVFD and EVAC maintain formal department history summaries and scrapbooks. CLVFD does not have a formal history effort, but does collect scrapbook materials. In each agency, records are kept of each official meeting. Annual reports of department activities and outcomes are produced.

A regularly maintained historical record serves as a valuable tool for planning and decision-making. It allows quick recollection of how the department has adapted to changes in the community. It provides valuable historical data to agencies, such as the Insurance Services Office, for evaluation purposes. It also allows for permanent memory of the people who have contributed to the success of the department in its service to the community. A well-produced annual report can serve to satisfy this need. In addition, an annual report is a wonderful communications tool to share the efforts and activities of the department with the public.

At a minimum an annual report should include:

- Brief history of the department
- Summary of events and activities during the report year
- Description of major incidents handled by the department
- Descriptions of new or improved services and programs
- List of people who served with the department during the year
- Awards received by the department or individuals
- Financial summary including revenues and expenditures, grants, etc.
- Statistical analysis, with trends, of key community service level indicators

The annual report should be printed and distributed to the community and made available at such places as the local chamber of commerce and library.

Recommendation

- Each agency should bolster its formal history retention program and assign an individual the task of collecting and assembling such information.
- Each agency should continue to produce and distribute an annual report, including all major activities and accomplishments.

Finance

The assessed value of the Town of Ellington is $671,701,066 with a voter-approved mill rate for general fund operations of 30.4. The authorized budget for fire and emergency medical services for the year 2003 is $478,308. Of this amount, $228,363 is drawn from the Town's General Fund Operating Budget, while $150,045 is drawn from the Town's Capital Improvement Budget.

The following figures provide an overview of the current fiscal year budget.

Figure 2: Budget By Major Program

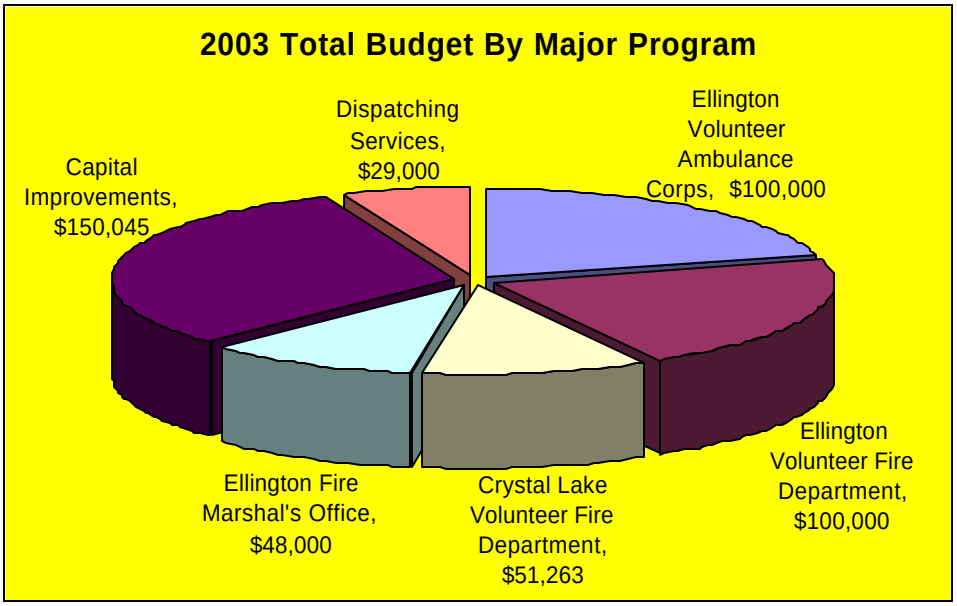
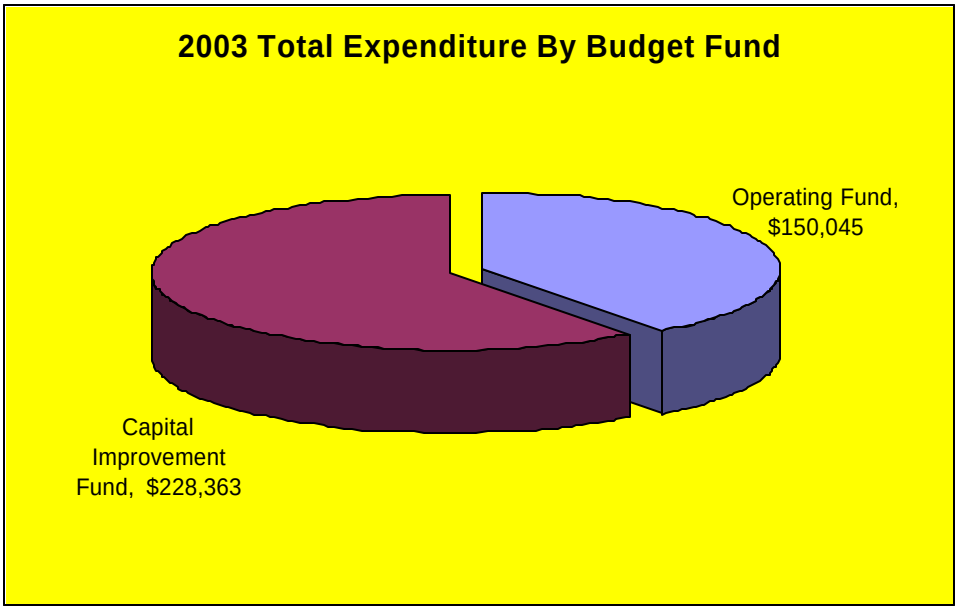
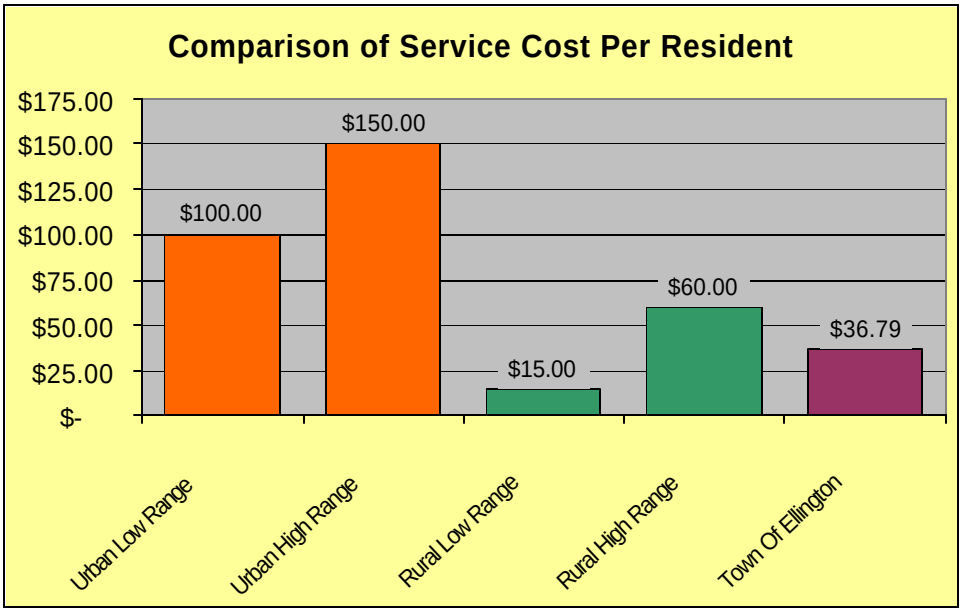


Figure 3: Budget By Fund



Given the population of the Town of Ellington (12,921), the following chart demonstrates fire protection costs per person and contrasts this with other communities, both larger and smaller.

Figure 4: Fire Service Cost Per Person



The comparison figures that are provided have been developed by ESCi and, as such, represent the company's collective experience with fire service tax costs as observed during work in agency evaluations, growth management plans, staffing studies, station location studies, merger and consolidation studies, and strategic planning in fire department agencies. As used in this chart, urban refers to those communities utilizing primarily career or combination staffing systems serving populations in excess of 35,000 persons or with average population densities of greater than 3,000 persons per square mile. Rural refers to those communities utilizing primarily volunteer staffing systems serving populations less than 35,000 or with average population densities of less than 3,000 per square mile.

The chart above demonstrates an extremely favorable emergency services cost per person within the Town of Ellington.

For most emergency service systems, major cost recovery options are limited primarily to Emergency Medical Services, where costs are underwritten by health insurance providers and Medicare. Additional possibilities exist in the area of hazardous materials response, fire suppression response, and code enforcement.

Some revenue can be gleaned from response to hazardous materials incidents, where "spiller pays" laws often require that departments are reimbursed for their mitigation efforts. However, this is typically limited to actual documented expenditures and, with the exception of very busy hazmat teams, provides little in the way of a predictable revenue stream.

Some fire departments have initiated billing for fire suppression responses, primarily to insured structures. However, most insurance carriers provide very limited coverage for such fees, thus the revenue is rarely worth the political and public relations challenges or the administrative efforts to collect it. As a result, many such efforts have begun and failed.

Code enforcement efforts often provide the most reliable, consistent and predictable source of revenue aside from EMS. Many communities have established a fee ordinance for their code enforcement division which initiates billing for everything from routine inspections to licenses and plan review. Code enforcement fees such as this can be based on occupancy type (reflecting the relative complexity of the inspection), while plan review fees are often based on the square footage of the structure reviewed.

There are some cost recovery efforts underway in Ellington. EVAC currently bills patients for ambulance transport. In 2002, EVAC reported net billing revenue of $157,398 to the Department of Public Health. In conducting its service fee billing, the department accepts the Statewide Rate Schedule, resulting in fees that are both consistent and reasonable in comparison to other communities in the region. No significant changes in this process were identified to improve this effort.

The Town of Ellington does not charge for services provided by the Fire Marshal and, given the relatively small size of the community, the initiation of such fees may be a public relations challenge. However, given the potential revenue, it may be worth pursuing at some point. The following table demonstrates potential revenue based on sample fees for services and the number of such services performed as reported in fiscal year 2001-2002. The table demonstrates a revenue potential of nearly $13,000 which could be used to offset the costs of the Fire Marshal's Division.

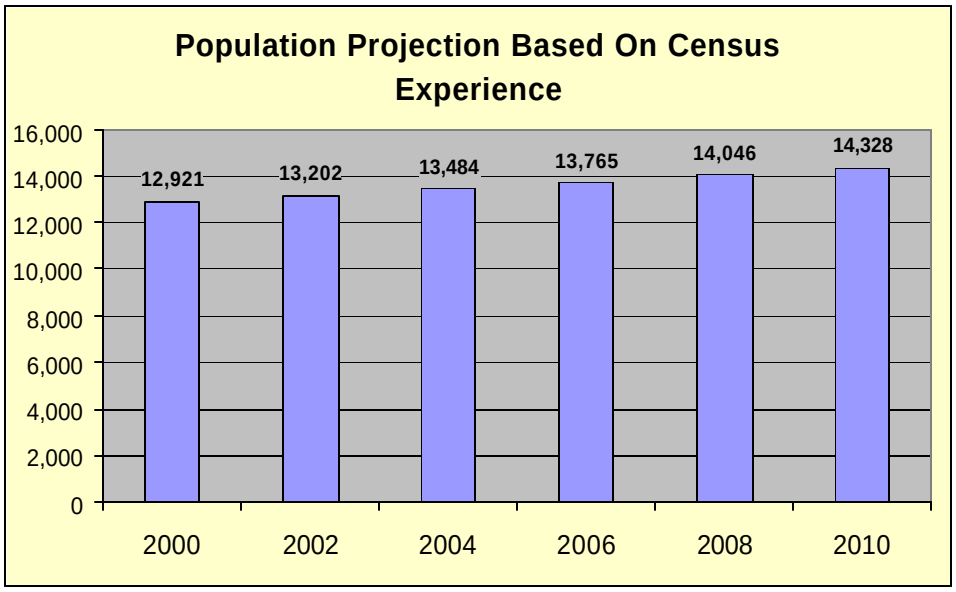
	Activity '01-'02	Sample Fee	Potential Revenue
Inspections			
Commercial	8	$ 100	$ 800
Public Assembly	17	$ 75	$ 1,275
Educational	11	$ 75	$ 825
Multi-fam Residential	102	$ 30	$ 3,060
Hazardous Materials	17	$ 100	$ 1,700
Other	34	$ 30	$ 1,020
Permits			
Licenses/Permits	37	$ 100	$ 3,700
Open Burning Permits	59	$ 10	$ 590
Total			$12,970.00

Given the limited amount of revenue from this source, this report is not necessarily recommending a fee structure for code enforcement be initiated at this time, but consideration should be given to its overall potential.

Population

The Town of Ellington provides emergency services to an estimated population of 13,300. Growth in this population is expected to continue. During the last decade, the population of the Town grew 15%. If we project a similar rate of increase for the next decade, the chart below shows estimated population projections for the Town.

Figure 5: Population Projection By Experience



While this method of population projection may be well founded mathematically, it does not take into account the build-out of existing development which can plateau population growth, nor does it consider an increasing rate in the platting of new development. In the case of the Town of Ellington, interviews with local official indicate that neither of these are significant considerations. Even if current zoning densities of about one unit per acre were to continue, the Town is far from reaching build-out. Likewise, the rate of growth is unlikely to accelerate more than a modest level because of constraints in the expansion of infrastructure such as water and sewer. Thus, a continuing growth rate of 2% to 2.5% annually is anticipated. A more conservative growth outlook is offered by CERC, a nonprofit corporation specializing in economic development and marketing for local economic development entities, whose Town Profile for 2003 projects only a 1% growth between 2002 and 2007.

It is not the intent of this study to be a definitive authority for the projection of future population in the service area, but rather to base our recommendations for future fire protection needs on a reasonable association with projected service demand. Since we know that the service demand for emergency agencies is based almost entirely on human activity, it is important to have a population-based projection of the future size of the community. While we can see variation in the population projections discussed here, one thing that can be certain is that EVFD, CLVFD, and EVAC will continue to be an emergency services provider to a significant population. Planning should begin now to maintain the resources needed to meet what will continue to be a growing demand for services.

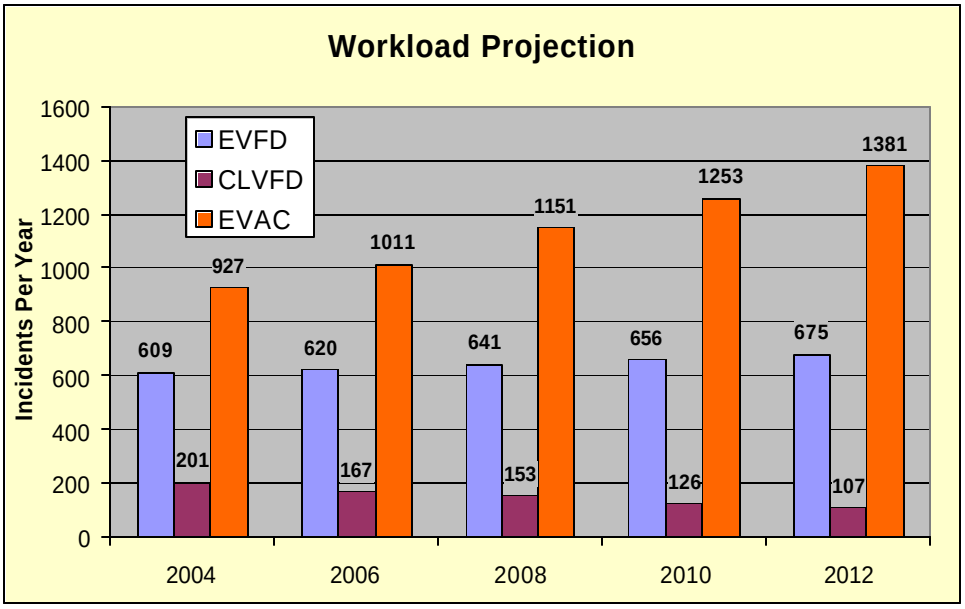
Alarms

According to the data provided by each department, the emergency service agencies in the Town of Ellington responded to a total of 1,242 emergency calls in 2002. During that time, 760 of these were

for emergency medical assistance, 76 were actual fires, and 426 were for other types of emergency responses. EVFD made 563 responses, CLVFD made 205, and EVAC made 760. Collectively, this adds up to more than the total of 1,242 incident, but many responses involved a single incident with multiple agencies responding.

Using population projections and the current response experience, a forecast for future response volumes can be made. The chart below shows this forecast.

Figure 6: Response Volume Forecast

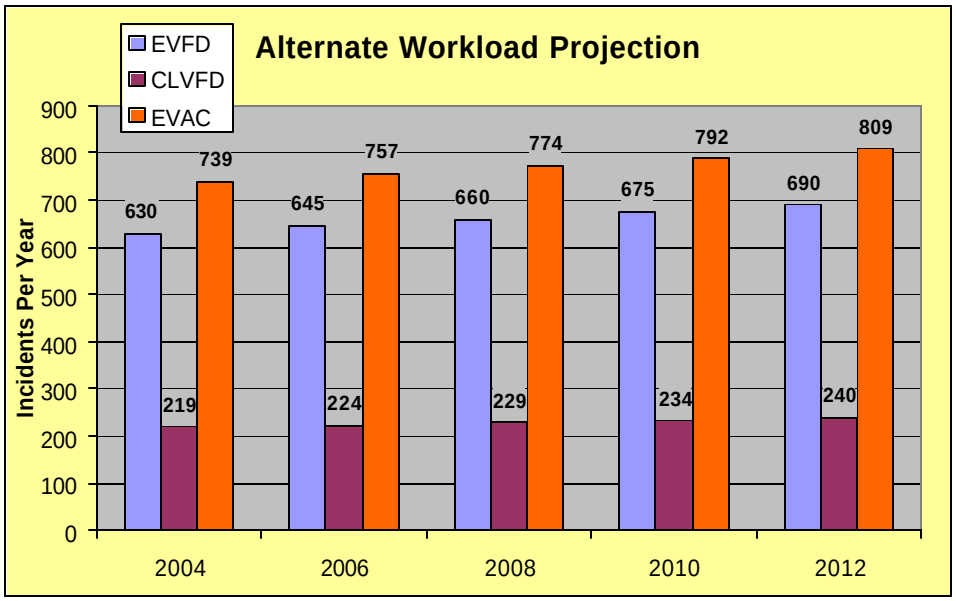


The chart shown above represents a strictly mathematical forecast based only on the previous three years of workload history. As such, the greater the fluctuations in the workload history utilized for the projection, the less dependable the results. In this case, CLVFD experienced a significant decrease in their workload between 2001 and 2002. While inconsistent with previous years' increases, the change was sizeable enough to result in a mathematical forecast model demonstrating projected reductions in the years ahead. While scientifically founded, the projected decreases seem unlikely without significant changes in the community. Similarly, EVAC experienced an unusual increase between 2000 and 2001 that was sizeable enough to result in a mathematical forecast model demonstrating projected increases in workload that are likely overstated for the years ahead.

Thus, a second method of workload projection is offered. In this forecast model, the rate of incidents per capita is calculated for the previous four years and averaged for each agency. This average rate of incidents per capita is then multiplied by the population projection for that particular agency's service area for the following decade. The resulting service demand forecast is offered in the

following figure.

Figure 7: Alternate Response Volume Forecast



The projections or forecast of service demand is only as reliable as the data analyzed in its composition and the consistency of the trends used in its formulation. The greater the fluctuations in the workload history, whether caused by anomalies in reporting methodology or temporary increases in service demand brought on by unusual or severe weather conditions, the greater the resulting fluctuations in workload projection. The workload projections offered in this report are appropriate for general system planning only and should not be relied on for detailed operational deployment.

A more detailed analysis of existing service demand will be made in the Delivery System section of this report.

Recommendation

- Begin planning for the acquisition of needed resources to serve the expected growth in demand for fire and emergency services.

Objective Two – Management Component

The three agencies involved in this study all face challenges to organizational growth and management. In addition to the continuing growth of the community and workload, the predominant use of volunteer personnel always presents unique issues involving the consistency and adequacy of response, maintenance of competencies, and recruitment of future workforce. This section of the report examines the departments' efforts in this area and their preparation for the future health of their organization.

Mission, Vision, Strategic Planning, Goals and Objectives

The process of strategic planning involves clarifying an organization's mission, articulating its vision for the future, and specifying the values within which it will conduct itself.

None of the departments involved in this study have conducted formal strategic planning processes. EVFD does have an adopted mission statement. However, no clear organizational vision for the future has been developed. Member value statements do not exist. No strategic plan specific to the fire department exists, nor are goals and objectives formally established to direct organizational effort. Neither CLVFD or EVAC have any components of strategic planning in place, including a mission statement.

As such, these agencies direct their efforts at the immediate issues such as responding to the next emergency, and are unable to commit significant time to planning for future service delivery, evaluating service improvement opportunities, or developing new programs and services desired by the customer.

A Customer Centered Strategic Planning process could resolve much of this deficiency and give these departments a clear sense of direction. A departmental strategic plan, when developed, should include an organizational mission statement, vision, and values. Service delivery goals should be developed and objectives defined for accomplishment of the goals. Critical tasks and timelines for accomplishment should also be produced. This effort is clearly important to the future of the fire and emergency services system.

In the case of these Ellington agencies, consideration should also be given to conducting a consolidated strategic planning process inclusive of all three agencies. Such an effort would ensure coordinated planning to eliminate redundancy and identify cooperative roles within the emergency services delivery system.

Recommendation

- Complete the development of a comprehensive Customer Centered Strategic Plan for each department.
- Establish published mission, organizational vision and value statements, goals and objectives, and critical issues. Distribute to all members.
- Establish a specific method for periodic review of all plan elements.
- Consider conducting the strategic planning in a consolidated effort with all three agencies in order to develop cooperative and coordinated visions and goals.

Availability of SOG's, Rules, Regulations, and Policies

As discussed previously in this report, departmental management policies exists but are somewhat fractured between several documents in some cases. As recommended previously this needs to be resolved in the short-term. As occurs in EVFD, policies should be reviewed annually and, on occasion, assigned for revision.

The departments use different methods for developing policies and guidelines. Committees are often utilized, an effort that typically results in greater acceptance and "buy-in" from members. Some standard operating guidelines are established at officer's meetings and often perfected through some trial and error. EVAC utilizes the standard BLS medical protocols established by the State Office of Emergency Medical Services. All three agencies said their guidelines are utilized during training exercises to reinforce their applicability.

SOG's and Administrative Policies are made available to all employees and members in each agency.

Critical Issues

It is extremely important that there be a clear understanding of critical issues facing the departments. Without such an understanding, department leadership cannot be prepared to face these issues. In addition, the enunciation of critical issues to employees and members increases their awareness of the organization's priorities and assists them in becoming focused on solutions.

A further exploration of critical issues should be completed during strategic planning processes, but for now, the following issues should be given serious consideration for inclusion in the final list. These are items that have been identified by the officers of the departments as issues with significant potential for impacting the success of the organization and the effectiveness of its service.

In Ellington Volunteer Fire Department, they are:

1. Facility deficiencies that detract from its mission
2. Recruiting and maintaining adequate manpower to meet its mission
3. Maintaining adequate support (financial and otherwise) from municipal government

In Crystal Lake Volunteer Fire Department, they are:

1. Recruiting and maintaining adequate manpower to meet its mission
2. Maintaining adequate funding mechanisms
3. Keeping pace with changes in the fire service, the community, and applicable standards

Ellington Ambulance Corps was unable to provide its three most critical issues. It is important that the organization, and its leadership, be focused on the primary issues that can impact organizational success, and EVAC should work on focusing its energy on those issues. The first step is the identification and articulation of these critical issues.

Internal and External Communications

Quality communications is an achievable goal for any organization, but one that always seems to be most elusive. However, it is extremely important. To their credit, there are established communication processes within these departments that provide opportunities for department personnel to be heard and be involved.

Regular staff meetings have been initiated in each agency, and include all primary staff and officers. The meetings are held every month and, with the exception of CLVFD, minutes of these meetings are produced and distributed. In EVFD and EVAC, written information is distributed as appropriate through formal memorandums and some signature verification is used for critical items. CLVFD rarely utilizes formal written communication.

EVFD is utilizing some email distribution among its members and posts some items on an internal "members-only" website area. Each department has member mailboxes within their stations. Employee/member newsletters have not been initiated. Regular meetings of the department membership in each agency provide a forum in which employees/members can bring forward issues that need attention.

A reasonably effective effort is currently made to communicate with the public. A local community newsletter is utilized regularly and both EVFD and CLVFD provide announcements to the local cable television station. In addition, each agency has a website, some more active than others, but all

providing basic information on department activities and accomplishments. All three agencies are involved in attending, supporting, or hosting community events.

Despite these efforts, however, no formal citizen's advisory committee has been established for any of the departments, nor has any community opinion survey covering Town emergency services been conducted.

Recommendations

- Consider the establishment of a Town Emergency Services Advisory Committee to provide customer input into the emergency services planning processes.
- Consider the use of a community opinion survey to obtain customer input on Town emergency services.

Document Control and Security

Records management is a critical function to any organization. A variety of uses are made of written records and, therefore, their integrity must be protected. State law requires public access to certain fire and EMS department documents and data. The departments are private corporations, but since they receive significant government funding they are subject to many of the same public records laws and other government or public agencies. Clear written procedures should be in place to provide for public records access through the department officers.

In each agency, hard copy records are organized by the officers and are currently kept in facilities with some additional security. Computer files are regularly backed up. Password protection is utilized for individual computer workstations in EVFD and EVAC, but CLVFD's computer has little protection. With the exception of EVFD, virus protection and network firewalls for computers are not used.

Each of these departments has a significant investment in facilities, apparatus, equipment and other items, along with its financial assets. Protecting these assets is very important. The department buildings themselves are secured with locks. In CLVFD, passage locks are changed regularly for additional security on station premises and a premises alarm is in place. EVFD and EVAC rarely change building locks and do not utilize security alarms. In addition, EVFD admits to poorly controlled public access as their building is often open or unlocked and public entry is difficult to monitor.

A capital inventory system is maintained in EVFD only, and is updated on a reasonably regular basis using a serial number inventory system. Cash and purchasing controls are in place in all three agencies. No cash is kept on any of the premises and only EVFD has general use credit cards available, with account controls in place.

The Health Insurance Portability and Accountability Act (HIPAA) includes regulations that require all individually-identifiable health care information be protected to ensure privacy and confidentiality when stored, maintained, or transmitted. EVAC, the agency most significantly impacted by this regulation, has a HIPAA compliance officer in place and strict policies to guide compliance. Efforts to access response records, even for the purposes of this report, are strictly controlled and require appropriate identification of the purposes involved in such access.

Recommendations

- Provide improved security of buildings and offices.
- Establish written policies and procedures for handling public access records requests and include these in agency policy manuals.
- Improve computer security to include virus and firewall protection where appropriate.

Reporting and Records

EVFD and EVAC provide a periodic response and activity report to the elected officials, while CLVFD submits no regular operational report unless requested. Under Town policy, each agency provides budget updates and other financial information. As mentioned earlier in this document, annual reports of department activities and accomplishments are produced and distributed.

Many of these departments' records are kept on computer. In EVFD, virtually all records are kept by computer, including incident records, station activities, personnel information, training, and maintenance. Basic activity records are kept by EVAC. All three utilize computer software for finance records.

CLVFD does not keep incident records on computer. This significantly impacted the time period required even for the analysis of this study. The consultants had to enter one year of response data into an electronic database, sheet by sheet, in order to produce adequate statistical analysis and geographical plotting. Likewise, the department does not electronically record training and personnel records. The lack of electronic records storage will continue to impact the department's ability to study and analyze its own performance and trends in workload and staffing.

EVAC does keep incident records on computer, but not in a formal or traditional database collection format. The software currently utilized is extremely limited. As with CLVFD, this will continue to impact the department's ability to study and analyze its own performance and trends in workload and staffing.

Certain records required to meet various standards are not maintained or submitted to the level necessary. In CLVFD, respirator qualifications[5] from a department medical provider (widely referred to in the fire service as "respirator certification") are not kept on file for each fire department member and a contagious disease exposure records system has not been put in place.

Required reporting under the National Fire Incident Reporting System (NFIRS) is performed by the Town Fire Marshal's office, but this reporting is currently limited to fire incidents where documented property damage occurred. The standards of the NFIRS 5.0 reporting system require at least a basic NFIRS incident report be submitted to the State Coordinating Agency for all incidents to which a fire department responds. This allows the NFIRS system to better judge the overall activity levels of the country's fire services. Perhaps the best method for accomplishing this would be the purchase and installation of an integrated incident reporting records management system. As incidents were recorded by the original responding crew upon return to the station, accurate reports would be generated for export to the NFIRS system. The system would be simplified and more accurate.

Recommendation

- Specify a standardized operational and financial report to be submitted monthly by each agency.
- CLVFD and EVAC should obtain commercial software designed for the purpose of collecting and analyzing emergency service records and reports.
- Maintain proper respiratory certifications and fit test records on all personnel.
- The Department of the Town Fire Marshal should ensure NFIRS reporting is in full compliance with all state and federal standards.
- Consider a single records management system for all three departments, including an NFIRS component, to simplify this process and improve consistency and accuracy.

[5] Required by OSHA CFR 1910- Respiratory Protection Program

Objective Three – Planning for Fire and Emergency Services

The fire service exists in a rapidly changing environment. Along with improvements in tools and methods to provide service come increased regulation of activities, new risks to protect and other challenges that quickly catch the unwary off guard. Only through continuous environmental awareness and periodic course corrections can an organization stay on the leading edge.

The Town of Ellington has already recognized the need for a stronger emergency service planning effort. This evaluation is the first phase of that effort. Thus, this report will concentrate on only those planning issues that may not be addressed through the current plan development phase.

Organizing for the Planning Process

The process of planning in advance for occurrences that will take place in the future requires both discipline and organization. In order to be truly effective, an emergency services agency must consider planning on three distinct levels: tactical planning, operational planning, and master planning. Tactical planning is practical preparation of incident strategies for potential emergency incidents. Operational planning is preparation for the day-to-day activities of the agency and its integration into other regional or national response networks. Master planning (long-range planning) is preparation for the future success and effectiveness of the agency in a changing environment.

There is some active short-term planning occurring within the emergency services of Ellington. The budget process is used to define a level of effort for the year. Day-to-day activity planning also occurs. However, the truly long-term perspective is missing. There is not much on which to base any qualitative or quantitative analysis of level or quality of service. Since this clear definition is lacking, it is difficult for policy makers to know when "great service" is achieved. This, again, can be addressed during a strategic planning process.

Tactical Planning

A firefighter's typical work area is usually quite foreign to him or her. Normally, a firefighter's first visit to a building is when the building is involved in fire. This is also the point in time where the internal environment is at its worst. Contrary to Hollywood's portrayal of the inside of a building on fire, visibility is at or near zero due to smoke. A lack of familiarity with a building can easily lead a firefighter to become disoriented or injured by an unfamiliar internal layout, or by equipment or other hazards that might be encountered.

It is critically important that firefighters and command staff have good information readily at hand to identify hazards, direct tactical operations, and use built-in fire resistive features. This can only be

accomplished by building familiarization tours, developing pre-fire plans, and conducting tactical exercises, either on-site or by tabletop simulation.

Pre-incident plans have been developed for certain target hazards within both the EVFD and CLVFD service areas. The pre-plan format chosen includes specific forms and site plan drawings or diagrams. In the case of CLVFD, however, the plans are reported to be out of date and may no longer include accurate or useful information. Diagrams indicating firefighter access, utility locations, hazard locations, staging areas and water supplies should be included with each pre-plan.

EVAC, while not involved in the same degree of tactical planning as the fire departments, should not overlook the need to tactically plan for potential mass casualty incidents at known high-occupancy hazards.

Additional pre-incident planning and updating is needed and related training should be provided on a regular basis.

Operational Planning

Response planning is informally coordinated among the area's fire chiefs. EVAC coordinates reponse plans with other area EMS providers. Formal regional mutual aid agreements are in place, and a few agreements for standardized automatic aid exist for some of the most common hazards.

The computer-aided dispatch system is loosely utilized to assist in the coordination of regional incidents. The system has been pre-programmed for multiple agency response and mutual aid. However, detailed apparatus control and assignment is missing. Departments are simply "toned out" and the incident nature and location is announced. From there, all response assignments are handled by each local department "on the fly". Thus, the computer is unable to track resource availability or automatically recommend closest available units for dispatch in accordance with pre-programmed preferences. Instead, dispatchers must physically interrupt the incident commander's activities to ask what equipment should be dispatched and from where.

A regional communications center, complimented by countywide computer-aided dispatch software that is both technically advanced and up to date, can provide the foundation for excellent operational planning. The Tolland County Dispatch center is currently in the process of significant improvements in the facility and software. Soon, a more advanced CAD system will be available for use. It is likely to have the capacity for tracking individual apparatus assignments by call-type and recommending the most appropriate available resources under the most stressful scenarios, even during several incidents simultaneously. However, it appears that many of the fire departments involved have chosen

the preservation of local control over of the more effective regional approach. Plans currently call for the continuation of general "station announce" dispatching with no significant change in apparatus tracking.

Disaster planning is primarily the responsibility of the State of Connecticut. A disaster management plan has been developed and some limited interagency training occurs to ensure coordinated efforts during a disaster.

Recommendations

- CLVFD should develop a revised and updated emergency incident pre-planning program inclusive of all medium to high-risk occupancies.
- CLVFD should include training on pre-incident plans in the ongoing training program.
- Fully develop the operational response planning afforded by the computer-aided dispatch system, including apparatus availability and automated unit recommendation.

Community Involvement Process

As mentioned earlier in this report, little is known by the agencies in this study of the community's expectations of its fire and emergency services. Citizen involvement has been largely limited to testimony provided at public meetings and feedback from informal conversations with citizens.

The Town of Ellington may wish to consider establishing a citizen's advisory committee for its emergency services. This committee would be made up of representatives from a variety of interests in the jurisdiction and would provide advice and input to the Fire Chiefs, EVAC's President and elected officials on such matters as:

- Long-term strategies
- Staffing strategies
- New services and programs
- Performance objectives and targets

Recommendation

- Consider establishing a citizen's advisory committee to provide the community perspective and input to the departments' officers and elected officials.

Objective Four – Risk Management

To be effective in today's rapidly changing society, organizations must consistently analyze and manage the risks to their welfare. For a fire or EMS department, this involves the process of identifying those issues within their environment that pose the greatest threat of financial or legal catastrophe and taking deliberate actions to reduce or eliminate that risk.

Risk managers have known the simple truth of this process for years… "If it's predictable, it's preventable." This simple phrase provides the foundation for the process we call risk management. By reviewing the losses the organization has had in the past, the losses other similar organizations have suffered, the national standards created to protect against losses, and the experience of insurance companies whose job it is to mitigate these losses, a department can identify positive preventive actions that will reduce the risk of loss to a minimum.

Risk Management Processes

The agencies involved in this study have each conducted some limited risk analysis processes in an effort to predict future exposures. The departments have each reviewed and conducted an informal voluntary inspection for compliance with OSHA regulations. In addition, the departments' insurance carrier has provided some risk management feedback as well. While this report will provide some basis for considering potential risk and identifying issues of concern, an on-going annual risk management strategy should be developed in cooperation with the insurance carriers.

Risk management services are administered through Town of Ellington Finance Director. The Finance Director receives data from the fire services and the ambulance company to compile and maintain the OSHA required records and public notices. Some interaction occurs between the risk management staff and the fire services and ambulance management, though perhaps not to the extent that would be recommended. The kind of regular interaction that should occur includes:

1. Periodic safety and risk inspections of fire department and ambulance corps facilities
2. Review of fire department and ambulance corps rules, regulations and procedures for potential risk exposure
3. Review of contracts and agreements entered into by the fire services and ambulance corps for potential risk exposure
4. Training of fire department and ambulance corps staff on emerging risk such as national liability claim trends, injury prevention, etc.
5. Periodic review, with the fire department and ambulance corps senior staff, of risk coverage and retentions.

Recommendations

- Provide for annual risk management strategy development.

Employee/ Member Issues

Volunteer position applicants in all three agencies complete a volunteer membership application form. Copies of additional relevant forms and paperwork are required. A check of criminal records and driver's license history is conducted. Department personnel complete basic reference checks on the applicant, but this process is somewhat informal and conducted to varying degrees, depending on the familiarity of the applicant. No specific applicant investigation packet has been developed by any of the departments to guide this process. Such formal programs typically contain specific forms for background interviews, check-off sheets for completion of all phases, instructions for obtaining non-disclosed references and so forth. The development of this process would be another excellent opportunity for cooperative effort by a combined work group from all three departments, resulting in a single, consistent method for screening new applicants within the agencies.

Orientation of new members is the responsibility of each agency individually. Formal member orientation is not currently conducted for the purpose of clarifying member policies, civil rights policies, and providing instruction on member's rights and responsibilities. Such orientation sessions are typically used to document that members were thoroughly informed on their individual rights and responsibilities as well as the protection afforded to them for their civil rights. Again, the departments should establish a formal orientation procedure for new members.

Individual files are kept to record information about members. This system is adequately standardized within each agency.

Each department professes to have a formal process is in place for handling terminations or resignations. Disciplinary terminations are handled on a case-by-case basis, proper documentation is required and each is typically reviewed with legal counsel. Structured exit interviews are not conducted with voluntary or involuntary separations. Records of terminations and separations are kept in personnel files.

Worker injury loss prevention primarily involves the issuance of protective clothing and member training. EVFD conducts both planned and undisclosed inspections of turnout gear. Regular inspections of protective clothing, to assure continued adequacy, should be conducted by all the agencies and formal rules should be established for cleaning and maintenance of protective clothing.

Operating guidelines specify required use of protective clothing, although steel-soled shoes are not currently required for station work. Training on certain basic safety issues occurs periodically and efforts are made to assure the training is available to each volunteer member. This training includes blood borne pathogens, hazmat operations updates, and routine station safety.

EVFD is the only agency with a formal department occupational health and safety committee (NFPA 1500) established at this time. The committee exists to review safety procedures and efforts, and to conduct formal review of accidents, injuries, or near-miss incidents. CLVFD and EVAC do not utilize a formal safety committee.

Reporting of all injuries requiring treatment is not strictly enforced, though the return-to-work process is structured, with a doctor's release required for both job-related and non job-related conditions when appropriate.

Recommendation

- Develop a formal, structured applicant investigation process with accompanying forms and procedural guidelines. It is recommended that this process be developed in cooperation and the three agencies adopt identical processes.
- Develop a formal process for separation of employees or volunteers, which includes a structured exit interview.
- CLVFD and EVAC should develop a department safety committee in compliance with the recommendations set forth in NFPA 1500: Standard for Fire Department Occupational Health and Safety Programs, or similar standard.

Liability Issues

The current insurance coverage for the fire services and ambulance corp is administered by Emergency Services Insurance Program represented by Wilcox & Reynolds, LLC, 922 Stafford Road, P.O. 521, Storrs, CT 06268. The entities insured are as follows:

- The Ellington Volunteer Fire Department, Inc.
- The Ellington Volunteer Fire Department, Inc. Ladies Auxiliary
- Ellington Volunteer Ambulance Corp., Inc.
- Ellington Rescue Post 512
- Crystal Lake Volunteer Fire Company #12
- Crystal Lake Volunteer Fire Company Ladies Auxiliary
- Crystal Lake Fire District

The departments involved in this study maintain very extensive general liability coverage for the functions authorized and performed by their department and its personnel, as follows:

Excess Liability Coverage

General Aggregate Limit	$20,000,000
Products-Completed Operations Aggregate	$20,000,000
Personal & Advertising Injury Limit	$10,000,000
Each Occurrence Limit	$10,000,000

Umbrella Liability Coverage

Commercial General Liability	
General Aggregate Limit	$10,000,000
Products-Completed Operations	10,000,000
Personal & Advertising Injury	1,000,000
Each Occurrence	1,000,000
Automobile Liability	
Combined Bodily Injury & Property	
Damage Liability	$ 1,000,000
Medical	10,000
Employers Liability	
Bodily Injury by Accident	
Each Incident	$ 500,000
Bodily Injury by Disease	
Policy Limit	500,000
Each Employee	500,000

Property Issues

The departments involved in this study maintain very extensive property loss coverage for the real and personal property owned and used by their departments and personnel, as follows:

Limits of Insurance

Portable Equipment	$ 560.000
Theft	50,000

Deductibles

Emergency Apparatus	$ 250
Portable Equipment	100
Other Property	100

Buildings

29 Main Street		
Building Coverage	$	723,900
Personal Property		40,000
41 Maple Street		
Building Coverage		479,360
Personal Property		40,222
316 Sandy Beach Road		
Building Coverage		794,000
Personal Property		33,666

Objective Five – Personnel Management

An organization's people are its most valuable resource. Careful attention must be paid to managing that resource to achieve maximum productivity for the organization and maximum satisfaction for the individual. A safe working environment, fair treatment, and recognition for a job well done are key components to job satisfaction. These apply as equally to volunteer personnel as they do to full-time staff.

Personnel Policies and Rules

Human resource functions related to volunteer members are handled primarily within each department. The fire chiefs at EVFD and CLVFD, and the president at EVAC, are provided some authority over the appointment and dismissal of volunteer members from active emergency response duty. They also appear to have reasonable authority to set certain standards for training and discipline of volunteers.

EVFD has an active Membership Committee in place which assists the Fire Chief in many of the human resource functions involving their members.

As indicated earlier in this report, appropriate personnel policies and rules have been established in the documents of these departments. These are made available for review to all department members.

Compensation, Point System, and Benefits

EVAC is the only department currently utilizing paid, scheduled employees. The department has Technician/Drivers that are employed part-time and with an hourly wage. The amount varies with experience and certification and ranges from $7.25 to $10.00 per hour. They are primarily scheduled during the weekdays to provide a more consistent response during periods of low volunteer availability. These employees are provided no additional fringe benefits aside from those required by law. They are appointed at will and are not under any collective bargaining agreements.

All three agencies use volunteer, on-call responders. All of these receive only "nominal compensation" as permitted by the Fair Labor Standards Act, allowing their exemption from minimum wage and other wage-related requirements. Average amounts vary, but can reach a high of $1500 annually for extremely active officers. With procedures that are established by the Town of Ellington, the system is coordinated and consistent across all three agencies and provides an example of processes that can be standardized.

A "Length of Service Awards Program" (LOSAP) is in place for volunteer members of all three agencies. The LOSAP, somewhat of a volunteer version of a pension, is permitted under IRS regulations and enhances recruitment and retention efforts. The program currently in place can provide up to a $280 per month benefit (upon retirement with 35 years of creditable service) and includes a death benefit.

Volunteers are provided with workers' compensation protection for on-the-job injuries under the laws of the State of Connecticut. This coverage provides options for basing the weekly disability income for qualifying individuals on either their usual employment salary or on the state average production wage factor, whichever is greater. Supplemental disability income is provided through an additional policy under the Connecticut State Firefighter's Association in the amount of $90 per week.

An Accidental Death and Disability policy has also been secured for the volunteers in the amount of $50,000, with a $20,000 benefit for cardiovascular death. In addition, a supplemental Accident and Sickness policy provides a variety of benefits for various job-related health conditions up to $200,000 for an accidental death or dismemberment.

These are excellent policy additions that go well beyond the minimum requirements of law and directly benefit the department members, serving to enhance recruitment and retention by assuring reasonable protection in the event of an injury or death. The Town of Ellington is to be commended for its aggressive pursuit of full and complete insurance protection for those individuals willing to commit their time and effort on behalf of the community.

Personnel Records

The maintenance of adequate and up to date records for volunteer personnel is every bit as important as for career employees. Each department keeps adequate and thorough written or computerized records of its personnel. Some of the records included are training records, initial applications, injury and accident records, and disciplinary records.

Disciplinary Process

A formal disciplinary process for volunteer members is identified in departmental policies and published in the rules and regulations of both the EVFD and EVAC. An appeal path is provided that permits a member who feels aggrieved the opportunity to be heard by the members of the Board in official session.

CLVFD does not currently have a clear and distinct disciplinary process. Its by-laws contain a reference to member conduct, but does not describe any process when improper conduct has been noted. Even though disciplinary situation may be rare in small departments, the time to develop the proper procedures and appeals processes is prior to an occurrence.

Recommendation

- CLVFD should establish a written disciplinary process and include a method for appeal by the member.

Counseling Services

Emergency services bring otherwise ordinary people into life and death situations that sometimes end very tragically. Even though department personnel are trained responders, they do not have an impregnable shield that prevents them from being affected by traumatic events. Critical incident stress is a very real condition that affects all emergency service workers to some degree or another. It is how emergency workers deal with that stress that makes the difference. The trigger for significant psychological trauma may be a single event, or a series of events compounding on each other.

Fire and EMS departments have recognized the need to provide a support system for their personnel who are exposed to traumatic incidents. The agencies in Ellington can call upon the services of trained personnel to conduct critical incident stress debriefings through a regional program.

Critical incident stress interventions by this group are short-term processes only. Though normally sufficient to help emergency personnel cope with the event, on occasion longer-term support is needed. Failure to provide that support can ultimately lead to the loss of a very valuable member.

An Employee Assistance Program (EAP) has been made available to personnel of the EVFD and EVAC as a long-term stress intervention tool. The EAP could provide additional support for other life problems that may affect a member's motivation and work quality such as substance abuse, marital difficulties, financial complications, and the like. Such a program should be considered for CLVFD as well. The costs are reasonable and the potential payback significant.

Recommendations

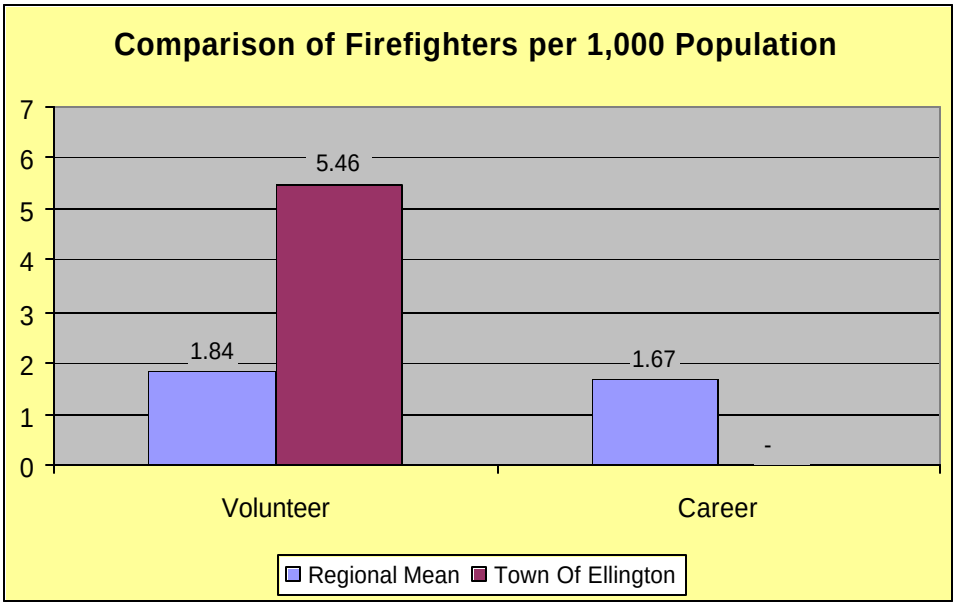
- CLVFD should consider obtaining the services of a full Employee Assistance Program for volunteer firefighters.

Application and Recruitment Process

Recruitment of personnel is a critically important function for each of these agencies. The increasing challenge of recruiting and retaining volunteer personnel has become a significant issue. Nationally, the average rate of volunteer firefighters per 1,000 people protected has fallen steadily by over 25% from 1984 to 2000[6]. Volunteerism is down across the country and a comprehensive effort is required to recruit and maintain sufficient numbers of volunteer personnel.

A review of the recruitment and retention statistics for the Town of Ellington shows an encouraging result. When we utilize the average number of firefighters per 1,000 people protected for the Northeastern region as a benchmark[7], Ellington compares quite well, as seen in the following figure.

Figure 8: Volunteers By Population



These statistics show that Ellington's rate of firefighters per population is much higher than the average in the region and higher than the national average. Recruitment by the EVFD and CLVFD could be said to be reasonably, if not exceptionally, successful.

EVAC currently boasts a membership of 50 volunteers. While there are no similar national or regional benchmarks to use in comparing the level of their roster to the population, our consultants' experience

[6] NFPA: U.S. Fire Department Profile, 2001

[7] Data taken from the National Fire Protection Association "U.S. Fire Department Profile", December 2002. This publication breaks down benchmark data into four regions: Northeast, Northcentral, South, and West. Northeastern regional data was selected for this report.

indicates this is an admirable number for an agency of its size. Still, the department suffers from response staffing problems in the daytime and has initiated the use of paid staff to supplement. Additional recruitment could possibly ease this problem.

In the future, if the numbers do not remain at a similar level, recruiting efforts could be expanded to include:

- Hold recruiting meetings at the workplace of major employers.
- Discuss with major employers the possibility of their releasing employees from work for emergency response.
- Conduct door-to-door information and recruitment campaigns to target volunteerism in areas of greatest need. EVFD currently provides recruitment information in this manner during its annual fund-raising campaign, reaching a significant and wide audience of potential members.
- Conduct a "Pre-academy Academy" during which prospective volunteers have a chance to get "hands-on" with the job prior to having to make the decision to join.

As with recruitment, the process used to select personnel should also be quite comprehensive. The community places a tremendous amount of trust in fire department personnel. Despite the national trend toward more challenging recruitment, the agencies in Ellington should take every effort to ensure personnel brought into their organizations meet this high standard.

As indicated earlier in this report, personnel applying for positions in the department currently undergo at least some level of background investigation. However, little or no screening is done to determine competency and fitness. Despite the incredibly physical nature of the work performed, no physical standards by which to measure applicants have been established and no process for evaluating their physical capability has been initiated. The American's with Disabilities Act (ADA) prohibits discrimination against individuals with physical disabilities, but permits employees to establish the physical standards that are required to perform the primary functions of any job safely and effectively. History has shown that the most effective method of avoiding litigation involving ADA is through reasonable and consistent application of job-relevant pre-employment physical ability testing. This can also apply to volunteer membership in a private organization supported by public funds.

Modern firefighting and medical response also requires extensive technical training, much of which is presented at the college level. However, no aptitude testing is performed to determine an applicant's ability to learn and master the skills needed to operate safely. This is certainly another missed opportunity to avoid an applicant who is later found to be incapable of learning or applying the necessary knowledge and memory skills, mathematical calculations, or understanding of fire and physiological science.

The departments have required applicants to either undergo a physical with a department physician or provide evidence that they have received a physical examination from their own physician. The degree of consistency to which these physicals are conducted is questionable without formal standards. Additionally, the use of a personal physician brings into question more issues of consistency. In the case of the fire departments, it is for this reason that the National Fire Protection Association has established physical standards for the health of an individual performing in the position of firefighter. Only EVFD has indicated that they are currently requiring physicals to be compliant with NFPA 1582. A department-contracted physician, trained and familiar with these standards, should conduct the entry-level physical examination in a consistent manner, certifying the applicant's condition in meeting those standards.

Recommendation

- Establish a physical ability test to determine the applicant's ability to perform the physical functions safely and effectively.
- Establish a knowledge and aptitude test to determine the applicant's ability to learn and apply the necessary knowledge.
- Establish physical standards and require a pre-employment physical by a department-contracted physician familiar with the application of these standards.

Ongoing Competency Evaluation

Once on staff, personnel should be evaluated periodically to ensure their continued ability to perform job duties safely and efficiently. While EVFD and EVAC do perform at least some level of periodic competency testing, no system is in place at the CLVFD to do this.

Technical and manipulative skills should be evaluated on a regular basis. This provides valuable information about a person's ability to perform their responsibilities and provides valuable input into the training and education development process.

Physical competency is evaluated only through casual observation of personnel in their activities. This does not provide the departments with solid information as to whether an individual remains physically capable of performing the rigorous tasks involved in emergency services. Physical competency testing should be conducted at least annually. The evaluation can mirror the entry physical capacity test but should, within limits, give some consideration for an individual's age.

Physical capacity testing cannot detect all potential limiting conditions of an individual's health and fitness levels. A periodic medical evaluation is necessary. National safety standards for firefighters recommend an annual medical evaluation and bi-annual physical examinations. The examination should include all the criteria included in the entry-level exam, as well as periodic stress EKGs for persons over 40 and regular blood toxicology screening. Communicable disease vaccinations can also be updated as needed during this process. Both EVFD and CLVFD require periodic medical examinations from their current members, while EVAC does not. The National Fire Protection Standard on Medical Requirements for Fire Fighters (NFPA 1582) is an excellent resource for establishing the criteria of both entry-level and on-going medical evaluations.

Regular evaluation and feedback for personnel is critical to behavior modification and improvement. No performance evaluation system is in place in any of the agencies for volunteer personnel. It is important to maintain such programs whenever possible. It has long been proven that employees and members sincerely wish to perform well and to be a contributing part of any organization. This desire to succeed is best cultivated through effective feedback that allows an employee or volunteer to know what he/she is doing well and what needs improvement. The honest and effective presentation of this feedback encourages the employee to reinforce those talents and abilities they already excel in and to work harder to improve the areas where they fail to perform as desired. Programs such as this can be delivered through a network of trained officers.

Recommendations

- CLVFD should develop a regular competency evaluation process that includes review of all skill sets required of its personnel.
- Conduct annual physical ability /capacity testing of emergency service personnel.
- Provide regular medical evaluations and examinations of all emergency service personnel that meet the recommendations of NFPA 1582.
- Establish performance evaluations for all personnel, both paid and volunteer, in each agency.

Health and Safety

While EVFD appoints a safety committee, EVAC and CLVFD do not have an active Occupational Safety and Health Board established. The National Fire Protection Standards for Fire Department Organization (NFPA 1201) and Fire Department Safety and Health (NFPA 1500) both call for the establishment of such a group in fire departments. In addition, the standards provide detailed information regarding the roles and responsibilities of that board. The CLVFD should formally

establish such a group and EVFD should review its program to ensure its committee meets the standard. EVAC should establish a board or committee with similar objectives.

The committees should be made up of a cross-section of the organization and should meet regularly to discuss safety issues and concerns. The committee should be charged with:

- Reviewing safety complaints
- Conducting safety inspections and making corrective recommendations
- Review accidents and make recommendations to prevent future occurrences
- Develop safety procedures
- Research new equipment to improve safety.

The Training Officer could also carry the assignment of department Safety Officer, an arrangement that is fairly common. This individual should be given an appropriate level of specialized training for this responsibility.

Recommendation

- Establish and support a Fire Department Occupational Health and Safety Board for the CLVFD, following the models set forth in the NFPA standards. Review the current Safety Committee at EVFD to ensure it is meeting these objectives. Establish a similar committee or board at EVAC.
- Maintain a Fire Department Safety Officer with an established training level in accordance with the standards set forth in NFPA.

Objective Six – Staffing

The Town of Ellington uses primarily volunteer staffing to provide service to the community. Administrative functions are generally the responsibility of the volunteer officers with support provided by the department Board. Staffing for emergency response to medical incidents is mostly volunteer, supplemented by paid Technician/Drivers on weekdays. Staffing for emergency response to fire incidents is entirely volunteer.

This report will review each department's staffing in both operational and administrative/support roles.

Administration and Support Staff

EVFD is managed and supported primarily by five people: the Fire Chief, two Deputy Chiefs, an Assistant Chief, and part-time clerical assistant. The Fire Chief is the senior executive officer responsible for all aspects of organizational management.

CLVFD is managed and supported primarily by three people: the Fire Chief, Deputy Chief, and Assistant Chief. Though the department has a Board secretary, this individual is not as actively involved in support and administrative functions as in the case of EVFD.

EVAC is managed and supported by four people: the President, Vice President, and 2 part-time clerical assistants.

In simplest terms, the primary job of all administrative and support (A.S.) staff is to make sure that firefighters have the ability and means to do their job on the emergency scene. Good A.S. is critical to the success of the fire department. With insufficient oversight, planning, documentation, training and maintenance, the operational sections of the department will fail any emergency test. However, like other parts of the fire department, A.S. requires resources to function properly.

We commonly look at the ratio of A.S. compared to total positions of the fire department to gain a sense of the relative amount of resources that are committed to this important function. As we stated earlier, the suitable balance of the two components (A.S. and emergency personnel) is crucial to the success of the emergency mission of every fire department. A number of emergency workers sufficient to be realistically able to fight fire, effect rescue, and provide other emergency services at the expected level is fundamental to the delivery of fire protection. The age of increased statutory regulation, however, makes it even more crucial that that proper documentation and oversight take place.

Statistically, the departments are maintaining the following ratios of administrative / support staff.

EVFD: 11%

CLVFD: 11%

EVAC: 6%

We believe that each agency should determine the proper ratio of A.S. and emergency positions dependent on local need, but based on our experience with similar agencies, we judge that the number of A.S. positions for EVFD and CLVFD is fairly reasonable, while the number in EVAC could be considered low. In our experience, similarly based emergency service departments usually have 10 to 15 percent A.S. jobs in the system.

It should be said that utilizing these average ratios within totally volunteer agencies often fails to reflect the reality of the situation. The average ratios discussed in the preceding paragraph are based on full-time employees in primarily career departments, with basic math determining the equivalency to volunteers. In real life, the equivalency is directly related to the time, commitment, and capability of the individual volunteer officers placed into the various positions.

In other words, it is not unusual for us to observe volunteer officers that commit nearly as many hours into a position as their career counterparts, while still maintaining full-time employment elsewhere. Conversely, we often see volunteer officers who do little but carry a title on their helmet, providing no significant effort toward the daily management of their organization. The contribution of these individuals to administration and support is virtually non-existent.

In volunteer agencies, we recommend that the need for administrative and support staff be carefully reviewed and monitored by the governing organization, in this case, the corporation boards. It is their responsibility to be certain that administrative and support functions are being conducted effectively and efficiently. They must also be certain that one or two individuals are not required to carry the full load of these responsibilities, in excess of what they should be reasonably expected to do as volunteers.

Recommendation

- EVAC should consider increasing the number of volunteer administrative and support positions, provided there are an adequate number of individuals who are willing and able to fill them, to assist in effectively carrying out the objectives of the organization and efficiently managing its personnel.

Emergency Services Staff

Tasks that must be performed at a fire can be broken down into two key components, life safety, and fire flow. The life safety tasks are based upon the number of building occupants, their location, status, and ability to take self-preservation action. Life related tasks involve the search, rescue, and evacuation of victims. The fire flow component involves delivering sufficient water to extinguish the fire and create an environment within the building that allows entry by firefighters.

The number and types of tasks needing simultaneous action will dictate the minimum number of firefighters required to combat different types of fires. In the absence of adequate personnel to perform concurrent action, the command officer must prioritize the tasks and complete some in chronological order rather than concurrently. These tasks include:

- Command
- Scene safety
- Search and rescue
- Fire attack
- Water supply
- Pump operation
- Ventilation
- Back-up/rapid intervention

The Commission on Fire Accreditation International of the International Association of Fire Chiefs (IAFC) has produced standards for the number of personnel required on scene for various levels of risk. This information is shown in the following chart.

Figure 9: Staffing Needs By Risk

Minimum Firefighting Personnel Needed Based Upon Level of Risk

Task	Maximum Risk	High Risk	Moderate Risk	Low Risk
Attack Line	4	4	2	2
Search and Rescue	4	2	2	
Ventilation	4	2	2	
Back-Up Line/Rapid Intervention	4	2	2	2
Pump Operator	1	1	1	1
Water Supply	1	1	1	
Utilities Support	1	1	1	
Command/Safety	2	2	2	1#
Forcible Entry	*			
Salvage	*	2	2	
Overhaul	*			
Communication	1*			
Chief's Aide	1	1		
Operations Section Chief	1			
Logistics	1			
Planning	1*	1		
Staging	1*	1		
Rehabilitation	1	1		
Division/Group Supervisors	2*			
High Rise Evacuation	10*			
Stairwell Support	10*			
Totals:	**50**	**21**	**15**	**6**

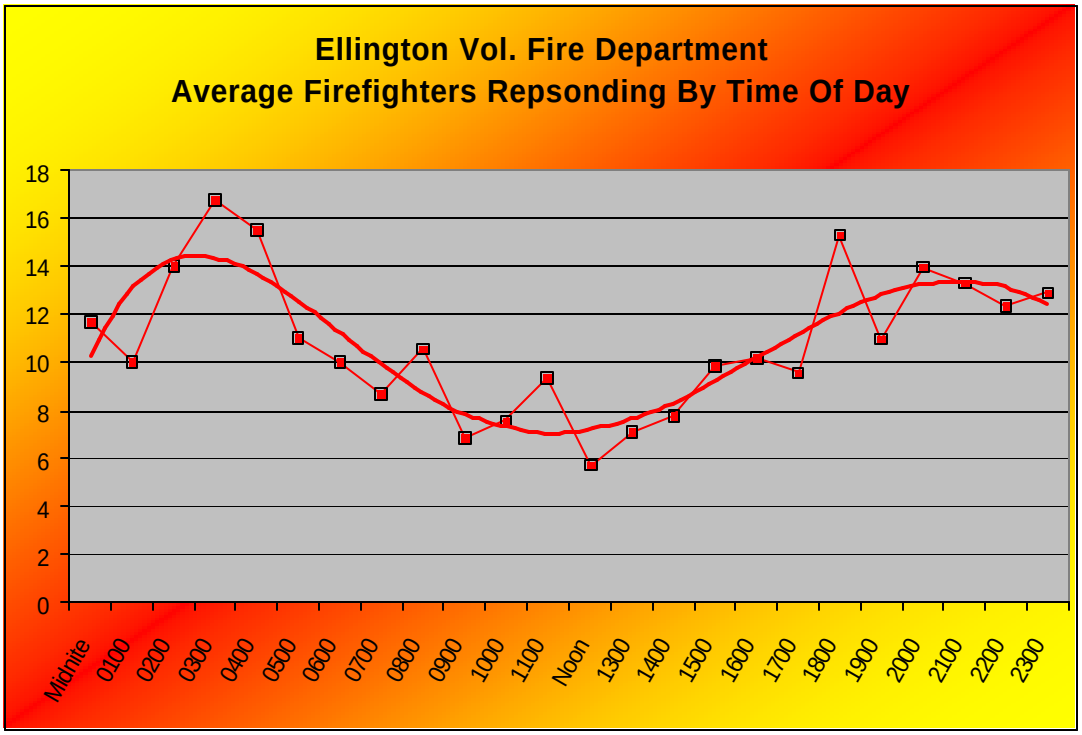
Can often be handled by the first due officer.

* At maximum and high-risk fires, additional personnel may be needed.

A review of response records was made to determine whether the two fire departments in this study were providing sufficient on-scene strength during various times of the day. For this analysis, data was considered for fire incident responses only. Medical incidents were not analyzed. Data for 2002 was analyzed.

We present the analysis of EVFD first.

Figure 10: EVFD Firefighter Staffing Performance

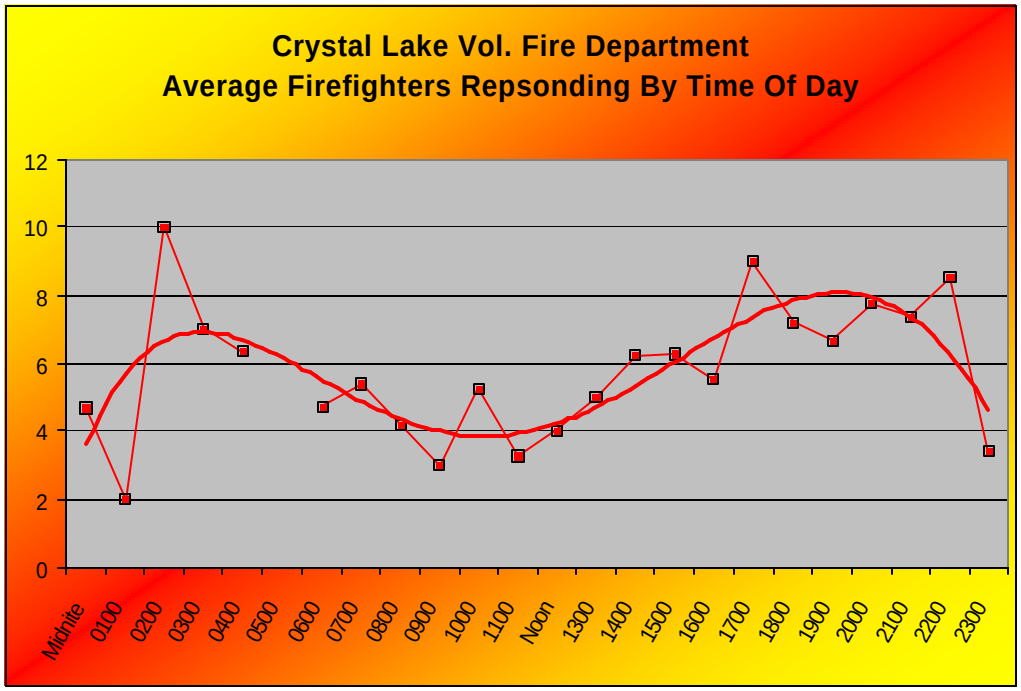


The preceding figure demonstrates that, during the hours of 8am to 5pm, the EVFD was able to muster an average of 8-10 firefighters for emergency incidents. In comparison with the staffing benchmarks in figure 9, we would rate this performance as "marginal".

This chart also demonstrates that, during the hours of 5pm to 8am, the department was able to muster an average of 10 to 14 firefighters for emergency incidents. We would rate this performance as "good". Still, it is worth noting that daytime staffing averages fell by 25% from the night hours, when volunteers tend to have most availability, to the weekday hours when most are working.

We continue with analysis of CLVFD staffing.

Figure 11: CLVFD Firefighter Staffing Performance



The preceding figure demonstrates that, during the hours of 8am to 5pm, the CLVFD was able to muster an average of 4-6 firefighters for emergency incidents. In comparison with the staffing benchmarks in figure 9, we would rate this performance as "low".

This chart also demonstrates that, during the hours of 5pm to 8am, the department was able to muster an average of 6 to 8 firefighters for emergency incidents. We would rate this performance as "low". As with EVFD, it is worth noting that daytime staffing averages fell by 25% from the night hours, when volunteers tend to have most availability, to the weekday hours when most are working.

Several conclusions can be drawn from all of the foregoing.

- The number of available emergency responders is lowest during the daytime hours on weekdays.
- On average, EVFD is currently providing an adequate number of responders during all hours for low-risk incidents and a marginal number of firefighters for moderate-risk fire incidents during the daytime.
- On average, CLVFD is currently providing a marginal number of responders during daytime hours and an adequate number of responders during night hours for low-risk incidents and a low number of firefighters for moderate-risk fire incidents during all hours.
- Both departments, as with many smaller departments, must rely heavily on mutual aid to provide additional manpower for high to maximum risk incidents.

While it is not at all unusual for departments to rely on mutual aid for high and maximum risk incidents, departments should be capable of providing adequate manpower for the more common low to moderate risk incidents. Since the average number of emergency responders during daytime hours is lower, the departments should monitor this staffing performance and consider options for increasing this figure. Possible alternatives include additional recruiting of daytime volunteers, use of daytime paid personnel, or beefed up automatic aid within the Town.

Potential changes in the make-up of the community should also be strongly considered. For instance, as the community increases in sectors such as commercial business, service industry, or manufacturing, additional increases in daytime fire incident levels can also be expected. Businesses or manufacturing facilities employ individuals and conduct their heaviest production primarily during daytime hours. Likewise, increased transportation occurs during these same hours in heavily commercial or industrial areas.

Based on the amount of undeveloped property zoned for commercial and industrial uses in EVFD's area, it is our conclusion that the rate of daytime fire incidents will continue to rise there. However, unless significant changes occur in the trend of available daytime manpower, we would expect the average number of daytime responders to continue to statistically decrease as daytime run load increases. This trend may eventually require organizational change to mitigate.

As an EMS provider, EVAC has less concern over the quantity of manpower that it can summon at any given time, but must still address the consistency of that response. Dealing with life and death situations on a daily basis, the response must be reliably prompt. To that end, EVAC began recognizing trends in daytime staffing quite some time ago and heavily relied on a unique program that involves high school students in daytime response. After all, during the school year the students were reliable and consistent in their availability, particularly with the EMS station located right next door to the high school.

Still, a driver was needed to provide emergency response, even if the students were providing the medical care. While several options were utilized, the department is now paying a part-time employee to be a Driver/Technician during weekday hours. This process has returned the department to a prompt and reliable response, even when most volunteers are at work.

Recommendations

- Monitor daytime staffing performance measures to ensure adequate and timely response to all low and moderate risk fire emergencies.
- IN CLVFD, if daytime staffing performance decreases and remains below acceptable levels such as those provided in this report, consider options for increasing daytime volunteer personnel.
- If daytime staffing performance decreases and increased daytime volunteers cannot be successfully recruited, consider increasing the use of automatic aid and dual response.

Assignment of Responsibilities

In order to be a healthy organization, responsibilities related to the success of the department must be shared across a wide range of members. This enhances the ability of the members to have input into the operation and planning of the organization, as well as increasing the "buy-in" and acceptance of organizational goals.

Member committees are involved in research and discussion on various issues within these departments. For instance, committees are typically used to design the specifications for apparatus and equipment purchases. Special roles are often assigned based on the personal interests, talents and abilities of individual members. The effect of this trend can be seen in the increased enthusiasm of members toward organizational planning and decision-making.

Indications from interviews are that, on occasion, assignment of roles and responsibilities must be based primarily on the time availability of individuals. Assigning roles to qualified individuals who have no time to complete the responsibilities has proven ineffective. This is a common problem for volunteer agencies and can only be countered by increased motivation of qualified personnel and increased training and experience for those with less qualifications but more available time.

Objective Seven – Capital Improvement and Replacement Programs

Emergency service agencies need a balance of three basic resources to successfully carry out their mission: specifically- people, equipment and facilities. Because firefighting and emergency medical services are an extremely physical pursuit, the adequacy of personnel resources is a primary concern, but no matter how competent or numerous the firefighters and EMTs are, the department will fail to execute its mission if it lacks sufficient apparatus distributed in an efficient manner.

As mentioned previously, the Town of Ellington has hundreds of thousands of dollars worth of capital assets. These assets are necessary to provide service and must be maintained and replaced as needed. Maintenance and replacement plans should be created and maintained for facilities, apparatus, and high value equipment. A funding mechanism should be established within the Town's financial policies to ensure money is available to cover the cost of this effort.

Fire Stations and Other Facilities

The Town of Ellington does not have a formal facilities plan. Given the current trend of steady growth in the community as well as its healthy economic conditions, the time is right to develop a comprehensive and long-range facilities management plan.

Inadequate facilities for housing firefighters and apparatus detract from the department's mission. They can significantly limit the available options for resource assignment. They can hinder the ability to maintain a well-trained and fit workforce and can affect employee morale. In the case of all three agencies involved in this study, the design and construction of the stations are reasonably suitable for the operation, as it exists today. The commitment of the departments and the community to providing adequate facilities is commendable.

However, consideration should be given to the ability of the facilities to support the functions of the departments, as they may exist in the future. The primary functions that should take place within the station environment should be closely examined and adequate, efficient space for all functions should be provided. Here are some examples:

Housing and cleaning apparatus and equipment
Residential living for on-duty crew members (male and female)
Administrative office duties
Firefighter training
Firefighter fitness

While this list may seem elementary, compromises in the ability of the facility to support any of these functions can detract from its primary purpose for existing.

ESCI conducted a review of the facilities that are utilized in the emergency services system in the Town of Ellington. Comments and notation contained herein are the subjective observations of the ESCi consultants and were current as of the time of the field data collection visit.

EVFD Station
Built in 1946 with several major additions through the years, this 8500 square foot facility consists of two levels with eight apparatus bays. Any specific problems with this facility can be classified into the following seven categories:

• Design:	*This building was originally a combined highway department garage and fire station. Although several additions and renovations have occurred, it cannot be said that the building was ever specifically "designed" for its current use, but rather modified and adapted. As a result, several major fire service functions are compromised.*
• Construction:	*Original portion is basic block and wood frame construction. Additions are basic steel frame and siding. Some interior finishing work done by members. Building is in relatively good condition. Manual emergency power system.*
• Safety:	*Building is not sprinklered. Automatic alarm system is in place. Hose tower presents increased safety risk vs. forced air dryers. Flammable and combustible products stored improperly. Significant risk of backing accident exists due to excessive front to rear length of apparatus in comparison with the size of the bays.*
• Environment:	*No exhaust removal system.*
• Code Compliance:	*Storage in attic area over three-bay addition is not in compliance with building codes. Occupancy separations between living areas and apparatus bays do not appear to meet current code. Facility is not ADA compliant.*
• Staff Facilities:	*Office space is inadequate. Inadequate and inefficient storage. Many rooms utilized in shared-use fashion. Facility was not designed for use by on-duty staff. No dormitory or exercise areas. No downstairs women's restroom.*
• Efficiency:	*Limited size, cramped facilities. Poor circulation, impeded movement through bay areas. Some apparatus currently housed in adjacent storage building.*

	**CLVFD Station**, Built originally in 1950 with major additions in 1989, this 9500 square foot facility consists of two levels with six (primary) apparatus bays. Any specific problems with this facility can be classified into the following seven categories:
• Design:	*Reasonably good space utilization, considering multiple renovations.*
• Construction:	*Building is in good condition. Manual emergency power system.*
• Safety:	*Building is not sprinklered. Automatic alarm systems in place. Some storage located in work and movement areas. Minor flammable and combustible products stored improperly.*
• Environment:	*No exhaust removal system. No equipment and turnout decon facilities.*
• Code Compliance:	*Building would not fully meet ADA.*
• Staff Facilities:	*Facility was not designed for use by on-duty staff. No dormitory areas.*
• Efficiency:	*Offices are immediately off apparatus bays creating noise, comfort, and efficiency problems.*

Not Pictured	**EVAC Station**, Built originally in 1979, this 5000 square foot facility consists of one level with two apparatus bays. Any specific problems with this facility can be classified into the following seven categories:
• Design:	*Well-designed building for its intended purpose.*
• Construction:	*Building is in excellent condition. Emergency power system.*
• Safety:	*Building is not sprinklered. Automatic alarm systems in place.*
• Environment:	*No exhaust removal system. No equipment and turnout decon facilities.*
• Code Compliance:	*None noted.*
• Staff Facilities:	*Facility was not designed for use by on-duty staff. No dormitory areas.*
• Efficiency:	*Small offices.*

A long-range facilities management plan should include a variety of items, such as:

- Location, timing, and cost of new facilities
- Identified long-term maintenance needs for existing facilities
- On-going funding plan

Recommendations

- Develop and adequately fund a long-range facilities management plan in accordance with the various recommendations for service delivery and resource deployment found elsewhere in this report.
- During development of apparatus specifications, be certain apparatus is not of such a length as to compromise safety in the building where it is to be housed.
- Plan for the eventual renovation or addition to the existing facilities to provide for optimum housing conditions for 24 hour staffing, providing the option to do so on a regular or occasional basis with either volunteer or paid personnel.
- Provide for automatic exhaust removal systems.

Apparatus

The Town of Ellington maintains a fleet of response vehicles that range from new to fairly old. Average age of apparatus is 13 years. Average condition is considered good. However, the Town will need to make apparatus replacement a significant priority in the long term to ensure continued reliability for emergency service use.

The following chart lists all major apparatus used by the Town of Ellington. It includes current age, life expectancy, and roughly estimated replacement funding requirements based on the type of apparatus that each agency has in use today. Annual replacement fund contributions are shown, with the exception of those vehicles already exceeding their expected service life, in which case the full replacement cost is listed under current cash requirements. This chart is **not** inclusive of all staff or specialty vehicles.

Figure 12: Apparatus Replacement Funding

UNIT	YEAR	REPLACEMENT COST	ANNUAL FUND CONTRIBUTIONS	CURRENT CASH REQUIREMENTS
ET-243	1975	$ 210,000	NA	$ 210,000
T-143	1970	$ 180,000	NA	$ 180,000
ET-143	1997	$ 265,000	$ 13,250	$ 79,500
R-143	2001	$ 175,000	$ 8,750	$ 17,500
S-243	2000	$ 40,000	$ 2,667	$ 8,000
F-143	1986	$ 100,000	NA	$ 100,000
S-143	1996	$ 30,000	$ 2,000	$ 14,000
E-143	1990	$ 265,000	$ 13,250	$ 172,250
R-142	1991	$ 175,000	$ 8,750	$ 105,000
R-242	1996	$ 30,000	$ 2,000	$ 14,000
E-242	1987	$ 210,000	$ 10,500	$ 168,000
ET-142	1984	$ 210,000	$ 10,500	$ 199,500
ET-242	1978	$ 210,000	NA	$ 210,000
F-142	1985	$ 100,000	NA	$ 100,000
S-142	2002	$ 30,000	$ 2,000	$ 2,000
A-543	1999	$ 125,000	$ 12,500	$ 50,000
A-643	1993	$ 125,000	$ 12,500	$ 125,000
TOTALS			***$ 98,667***	***$ 1,754,750***

What this chart shows is that in order to meet apparatus replacement needs of current resources, **$98,667** should be contributed to a reserve fund each year. Also, based on the age and replacement schedule of apparatus in use today, there should be **$1,754,750** available in a reserve fund now. The Town of Ellington has some capital planning in place for apparatus replacement, but not to this level.

ESCI conducted a review of the major apparatus utilized in the emergency services system in the Town of Ellington. Comments and notation contained herein are the subjective observations of the ESCi consultants and were current as of the time of the field data collection visit.

Engine 143

1990 Pierce Arrow Pumper

Custom Chassis, Four Person Cab

1500 gpm, 750 gal. tank

Condition: *Good to Excellent*

- Remarks: *Some unsecured heavy equipment in compartments (crash bar).*

Engine/Tanker 143

1997 Pierce Quantum Pumper

Custom Chassis, Six Person Cab

1500 gpm, 1000 gal. tank

Condition: *Excellent*

- Remarks: *Thermal Imager needs improved mounting.*

Engine/Tanker 243

1975 American LaFrance Pumper

Custom Chassis, Four Person Canopy Cab

1000 gpm, 1,000 gal. tank

Condition: *Fair*

- Remarks: *Some surface rust.*
  Equipped with American LaFrance pump that is a challenge for finding parts.

Tanker 143

1970 Brockaway/Farrar Tanker

Commercial Chassis, Two Person Cab

500 gpm, 2,500 gal. tank

Condition: ***Fair to Good***

- Remarks:

Renovated in 1990.
Cummins diesel engine rebuilt November 2001
4.5" dump valve is severely undersized.
Some surface rust.
Various repairs have been performed on the tank, particularly at plumbing connections. Service technician report in August, 2000 indicates tank is not in good condition.

Rescue 143

2001 Pierce Quantum Rescue

Custom Chassis, Six Person Cab

Condition: ***Excellent***

- Remarks:

4500 PSI cascade system
Light tower
DeWalt saw needs better mounting system.

Forestry 143

1986 American General "Hummer"

Commercial Chassis, Two Person Cab

250 gpm, 200 gal. tank

Condition: ***Good***

- Remarks:

Gasoline pump, self-contained
Equipped for first-aid response

Engine 242

1987 International Middlesex Pumper

Commercial Chassis, Two Person Cab

1,000 gpm, 500 gal. tank

Condition: ***Fair to Good***

- Remarks:

Front-mount pump.
Used primarily for supply at static water sources.
Some surface rust. Some rust beginning in structural areas.

Engine/Tanker 242

1978 GMC Brigadier Pumper
1000 gpm, 2000 gal. tank

Condition: ***Fair***

- Remarks:

Some surface rust on body.
Some structural rust in compartments.

Engine/Tanker 142

1984 GMC Brigadier Pumper
1000 gpm, 1000 gal. tank

Condition: ***Good***

- Remarks:

None

Forestry 142

1985 Chevy 1-Ton Pick-up Conversion
200 gpm, 250 gal. tank

Condition: ***Fair to good***

- Remarks: *Self-contained pump/tank*
  Weighed recently for compliance with GVWR

Rescue 142

1991 GMC Top-Kick Rescue Truck

Condition: ***Fair to Good***

- Remarks: *Carries all extrication equipment.*

Not pictured

Ambulance 543

1999 Ford Excellance Ambulance

Condition: ***Excellent***

- Remarks: *Side doorstop broken*

Not pictured

Ambulance 643

1993 Ford Horton Ambulance

Condition: ***Good***

- Remarks: *None*

Recommendation

- Develop a plan to adequately fund an Apparatus Replacement Fund or prepare for capital purchases based on apparatus replacement schedule.
- Take corrective actions on apparatus as indicated, ranked by safety priority.

Support and Small Equipment

Small equipment can take a significant bite out of an annual budget. Small equipment can be quite expensive and has the additional challenge of having its life limited by technology improvements. A small equipment replacement plan should also be established. The Town of Ellington does not have such a plan.

The plan, like facilities and apparatus, should include a schedule of equipment covered, estimated life expectancy, replacement cost, and annual contributions required to replace equipment as needed. It is recommended that all equipment with a value of more than $5,000, as well as groups of equipment with an aggregate value of more than $5,000, be included in the plan. Examples include:

- Heart monitor/defibrillators
- Portable and mobile radios
- Computer equipment and systems
- Computer software (major systems)
- Shop diagnostic and maintenance equipment
- Breathing apparatus

Recommendation

- Develop and fund a small equipment replacement program.

Objective Eight – Delivery System

The delivery of fire and emergency medical services is no more effective than the sum of its parts. It requires efficient notification of an emergency, rapid response from well-located facilities in appropriate apparatus and with sufficient staffing, following a well-practiced plan of action.

This section evaluates these various components and recommends improvements in the elements that make up the delivery of the most critical core services provided by the emergency service agencies of the Town of Ellington.

Notification System

The Town of Ellington is provided call receipt and dispatch service by Tolland County Mutual Aid Fire Service, Inc. This is a private, not-for-profit corporation that acts as a county-wide regional emergency communications agency that is managed by a full-time staff and administrator. The dispatch center, at the time of our site visit, was located in a converted residence not particularly well-suited for the operation of a modern communication center. Security was marginal and space was at a premium. Consoles and equipment were outdated. However, construction was underway at that time for a new facility to be located directly behind the current building. Plans shown to the consultants demonstrated a much larger, technologically up-to-date facility with more appropriate management of access and security.

Call processing and dispatch occurs quickly. Dispatchers dedicated to the fire/EMS function provide very good service. While no formal call processing time standards have been established, spot checks are done as a measure of quality control. According to interviews conducted on site, The State of Connecticut has mandated the use of Emergency Medical Dispatch protocols for all emergency dispatch centers in the state by 2004. Emergency Medical Dispatch protocols are not yet in place in the center, but personnel are being scheduled for certification classes in their use and the center manager anticipated compliance.

Computer-aided dispatch software is in use, but the program is old and has proven unreliable. It operates on a Windows NT-based server. The move to the new center will include replacement of the CAD software, consoles and computer system. At the time of our visit, software and consoles were out to bid and awaiting final decision.

Dispatch still takes place by general “station announcement”, with no programmed assignment of specific apparatus quantities and types. Back-up response programming by apparatus type has not

occurred, but general station back-up assignments are in place. Specific apparatus availability is not fully tracked by the software.

Communications are provided through a conventional VHF radio system with six in-system channels and off-system mutual aid links. The system is regional, which enhances the coordination of mutual aid resources.

The dispatch center has established reasonable contingency plans for system failure. A functionally redundant dispatch site is available. Back up power, transmitters and consoles are in place.

The departments are all using voice paging for notification of personnel. Notification systems do not currently include in-station printers.

Recommendation

- Complete full programming and utilization of all modern features of the selected Computer Aided Dispatch (CAD) software to improve efficiency and apparatus tracking.
- Work to initiate "dispatch by apparatus", rather than general station announcement, utilizing full "apparatus availability" tracking. Program all back-up apparatus lists at least ten layers deep.

Facility Deployment

The Town of Ellington is provided services from three locations. Coverage of the current service area may be reasonable for a rural fire protection system, but as the nature of the community shifts to a more suburban setting it will likely not meet recognized response coverage standards. Ellington will need to eventually consider additional locations or potential relocations to improve coverage and response time performance as development continue in the future.

There are two ways to approach analysis for fire station location planning. The Insurance Services Office, in its standards, defines ideal coverage as having a fire engine within one and one-half miles of any "built upon" area. The response boundary envelops around each station on the maps in this report are set at 1.5 miles, the distance a fire engine can travel in four minutes.

A more useful way to analyze fire station location planning is through the establishment of response time standards. There are two versions of response time standards that should be considered, geographic-based standard and demand-based standards.

- *Geographic Based Coverage – Assumes citizens of the jurisdiction are entitled to reasonably equitable fire and emergency services regardless of where they may live. Resources are deployed to include as much of the service area as possible within a maximum travel distance.*
- *Demand Based Coverage – Acknowledges that all life and property is of equal value and, as such, focuses on saving as much life and property as possible. Rather than attempting to ensure geographic coverage, it attempts to keep available resources close to the next most likely emergency to occur.*

Geographic Based Protection

Geographic based protection is driven, first and foremost, by geography. Workload becomes a distant second factor. It is essentially a focus on being able to *cover ground*; the ability to respond to any location within a given timeframe regardless of how frequently a response may be required.

Foremost among the advantages of geographic based protection is that it satisfies a fundamental desire for fairness in the distribution of a public service. It is politically palatable and minimizes potential conflict. Geographic based protection provides considerable stability to the location of resources. The priority is to cover ground, and the "ground" does not move or change very much. The "needs" of the ground being covered may change radically, but the priority is always to maintain the response capability to the area.

The primary disadvantage of geographic based protection is its inability to function with limited resources. In truth, equitable geographic based protection only exists when all the resources are ready to respond. Once a limited resource has been committed to a response, the protection is no longer equitable, unless another resource is available to take its place. Another problem with geographic based protection is that it is inherently inefficient in that resources become committed to areas where few emergencies occur. Busier areas could better utilize the resource.

Demand Based Protection

In demand-based protection, workload becomes the primary focus and geography the lesser issue. Resources are deployed where there is the highest probability of emergencies.

The primary advantage of demand-based protection is it increases the percentage of emergencies answered in the least amount of time. And since time is significant in the outcome of many emergencies this increased percentage of short response times will produce a greater number of favorable outcomes. In a situation of limited resources it acknowledges that the next most likely incident to occur is just as important as one in progress, and more important than the call *least* likely

to occur. It is more efficient than geographic based protection since resources are not deployed in areas of low or non-existent call volume.

The primary disadvantage of demand-based protection is that it creates a basis for conflict. By its very nature, it requires identifying those people who will receive diminished protection right up front. It ensures that response times to low workload areas will always be longer than to busier areas. Also, it does not allow for the same stability of deployment as geographic based protection. Demand based coverage must be highly mobile as demographics change, particularly with emergency medical calls. A constant re-evaluation of workload and demand changes must be conducted to ensure resources are properly deployed.

Basic Service Philosophy Applied to the Town of Ellington

The workload currently experienced by the Town of Ellington is primarily focused within central areas of the jurisdiction, closest to the old central village area, and extending down the major transportation corridors toward Vernon, Tolland, South Windsor and the Interstate Highway. Population, which drives demand, is the densest nearer to those more developed areas of the Town. However, as growth continues, higher demand will develop to the southeast and in the vast areas of land north of the old village that is capable of development. A careful watch should be kept of the Town zoning and comprehensive plans to develop predictions on when and where this increased population density will occur.

In addition, the policy makers of the Town must adopt response time standards so that the department has a basis to develop facility location planning, staffing, and unit deployment plans. Without this standard of performance, planning can become guesswork.

Just how much impact does response time have? Achieving a positive outcome in many emergencies is dependant on the time it takes for emergency services intervention to occur. Sufficient trained personnel must be available on the scene to perform all the duties and tasks required to effectively perform at a given event.

In addition, sufficient personnel must arrive at the scene of an emergency early enough to initiate actions that will minimize the consequence of the emergency.

Time dynamics of fire

Most fires within buildings develop in a fairly predictable fashion, unless influenced by highly flammable material. Ignition, or the beginning of a fire, starts the sequence of events. It may take some minutes or even hours from the time of initial ignition until flame is visible. This smoldering stage is very dangerous, especially during sleep time, since smoke generation can be significant.

However, once flames appear the sequence continues rapidly. Combustible material adjacent to the flame heats and ignites, which in turn heats and ignites other adjacent material, provided sufficient oxygen is available. As these materials burn, they emit heated gases that accumulate at the ceiling of the room involved. Some of these gases are flammable.

The spread of fire continues quickly and soon the flammable gases at the ceiling reach their ignition temperature. At that point an event called "flashover" occurs, that is the instantaneous ignition of these gases. Once flashover occurs damage caused by the fire is significant and the environment within the room or space can no longer support human life.

Flashover occurs at approximately five minutes from the appearance of flame in typically furnished ventilated buildings[8]. Since flashover has such a dramatic affect on the outcome of a fire event the goal of any fire agency is to be able to apply water to a fire before flashover occurs.

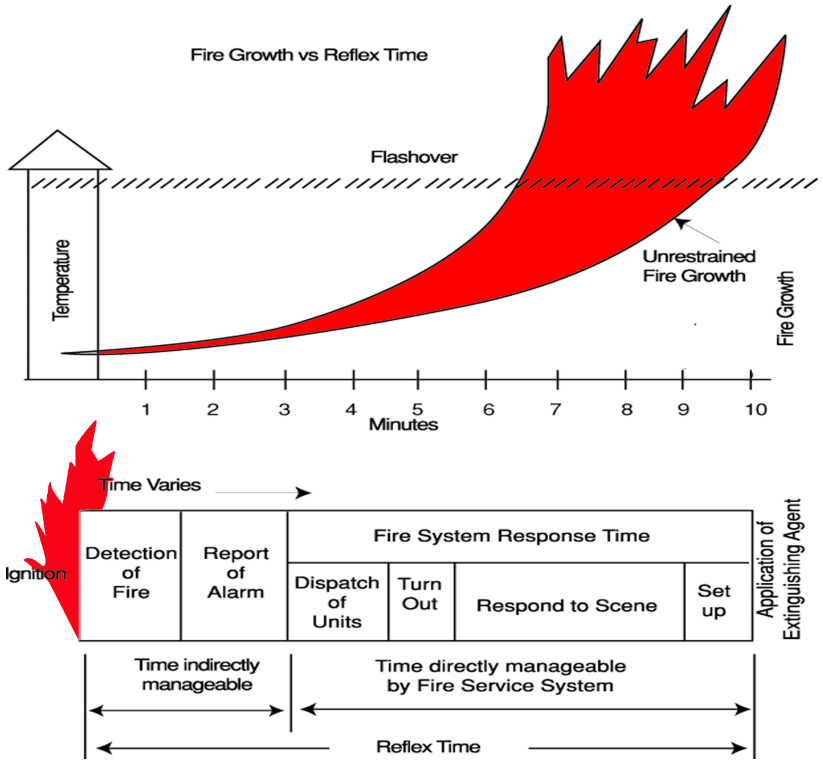
Perhaps as important as preventing flashover is the need to control a fire before it does damage to the structural framing of a building. Materials used to construct buildings today are far less fire resistive than materials used in older buildings. Roof trusses and floor joists are commonly made with lighter materials more easily weakened by the effects of fire. "Light weight" roof trusses fail after about five to seven minutes of direct flame impingement. Plywood I-beam joists can fail after as little as three minutes of direct flame impingement. This creates a very dangerous environment for firefighters.

In addition, the contents of buildings today have a much greater potential heat production than in the past. The wide spread use of plastics in furnishings and other building contents rapidly accelerate fire spread and increase the amount of water that must be applied to effectively control a fire. All of these factors make the need for rapid application of water to a fire critical to a successful outcome.

[8] Source: National Fire Protection Association; National Institute of Standards and Technology

However, a number of things must happen quickly in order to make it possible to achieve fire attack prior to flashover. The chart below illustrates this process.

Figure 13: Fire Growth vs. Reflex Time



First, the fire must be detected. This can happen immediately if someone is in the space where the fire occurs, or it can be delayed significantly if no one is around. Automatic fire alarm systems can take the place of human eyes in unoccupied areas.

Next, the fire must be reported to the dispatch center. People reporting emergencies must be well trained so that needed information can be passed from the caller to the dispatcher quickly.

Then, the dispatcher must select the correct units to send to the fire, notify them, and provide needed information. There are a number of technology opportunities that can speed this step up.

Next, firefighters must don firefighting equipment, assemble on the response vehicle, and begin their response. The time required for this step is minimized through good training and proper station design.

Next, and potentially the longest phase, is the response to the scene. This period is most influenced by the distance between the fire station and the location of the emergency, but can also be influenced by the quality and connectivity of streets, traffic, driver training, and other conditions.

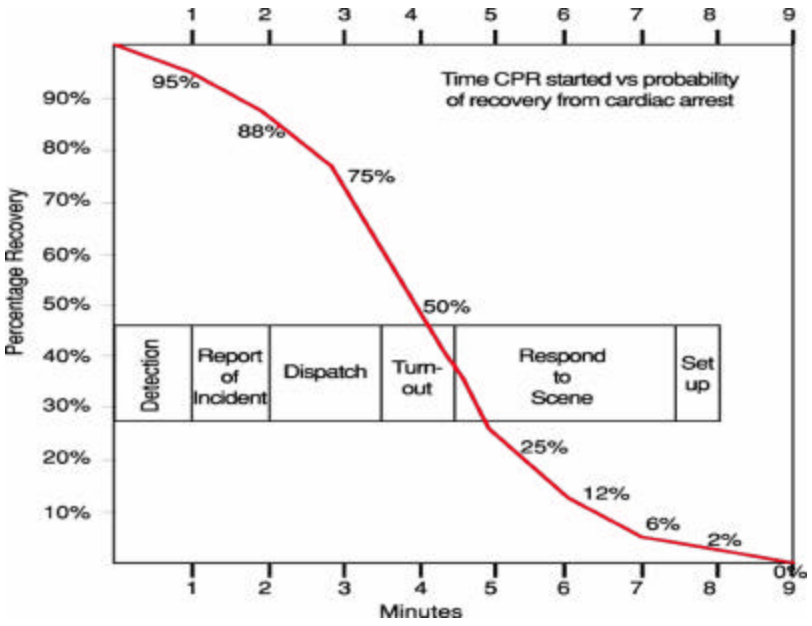
Finally, once firefighters have arrived they must position their apparatus, lay out hose lines, don additional equipment, and perform various other tasks before they can make entry into the building and begin applying water.

As can be seen, a fire department is seriously challenged to achieve water application prior to flashover. However, it is reasonable to use this as a response and station location planning criteria.

Time dynamics of cardiac arrest

The most significant medical life-threatening event is cardiac arrest. A victim of cardiac arrest has mere minutes in which to receive definitive life-saving care if there is to be any hope for resuscitation. Like fires, the sequence of events leading to this care can be graphically displayed.[9]

Figure 14: Cardiac Arrest Survivability By Reflex Time



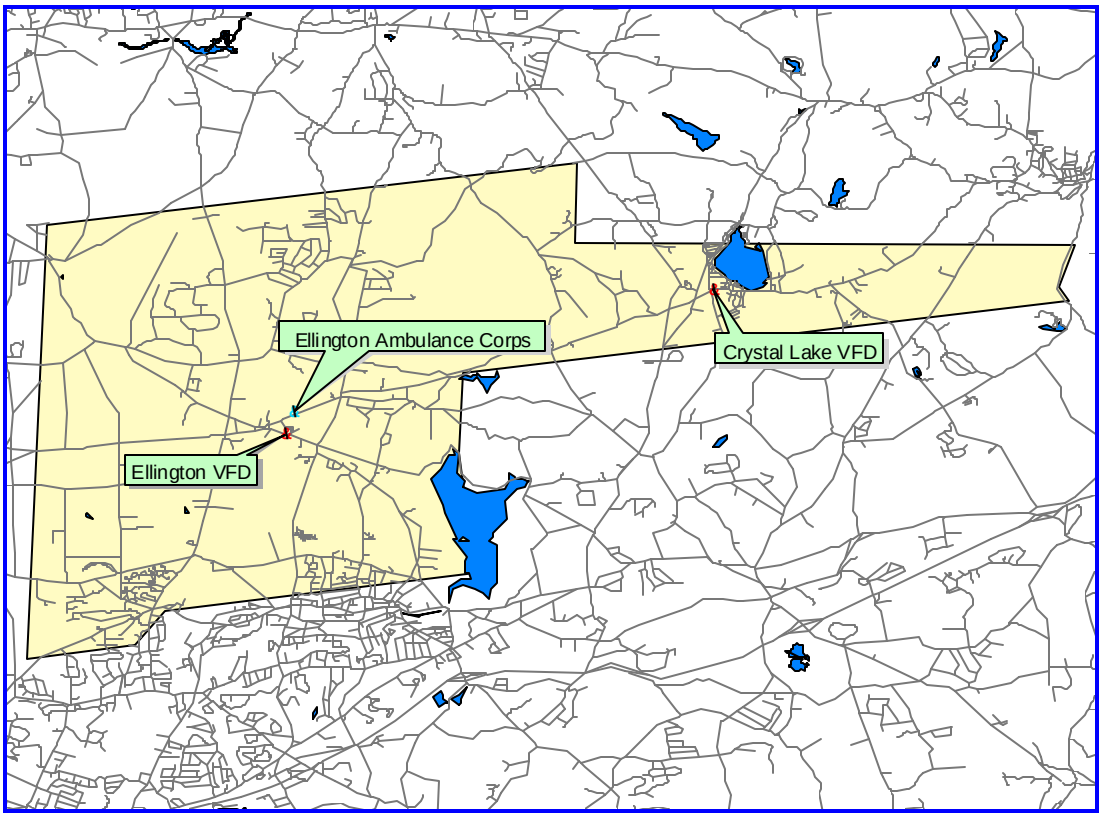
As can be seen, the percentage of opportunity for recovery from cardiac arrest drops quickly as time progresses, and the stages of response are very similar to those described in a fire response. Recent research also stresses the importance of rapid cardiac defibrillation as means of improving the opportunity for successful resuscitation.

[9] Source: American Heart Association

In developing response time performance objectives, the policy makers will need to consider both the geographic-based model and the demand-based model. Given the potential service population of the Town of Ellington, the demand-based model is desirable. However, the geographic coverage necessary to maintain reasonable ISO scoring will also be considered. Then, a target time and percentage achievement will need to be adopted to guide the planning of new facilities, hiring, and deployment of personnel and the selection of apparatus. This is a significant effort, but the timing is good for Ellington.

The map in figure 15 demonstrates the current station deployment for the Town of Ellington. As can be seen, there are two facilities from which fire apparatus is deployed, and one station from which the transport ambulances are deployed. Each agency also has the ability to draw from a large number of area resources through county-wide and regional mutual aid agreements.

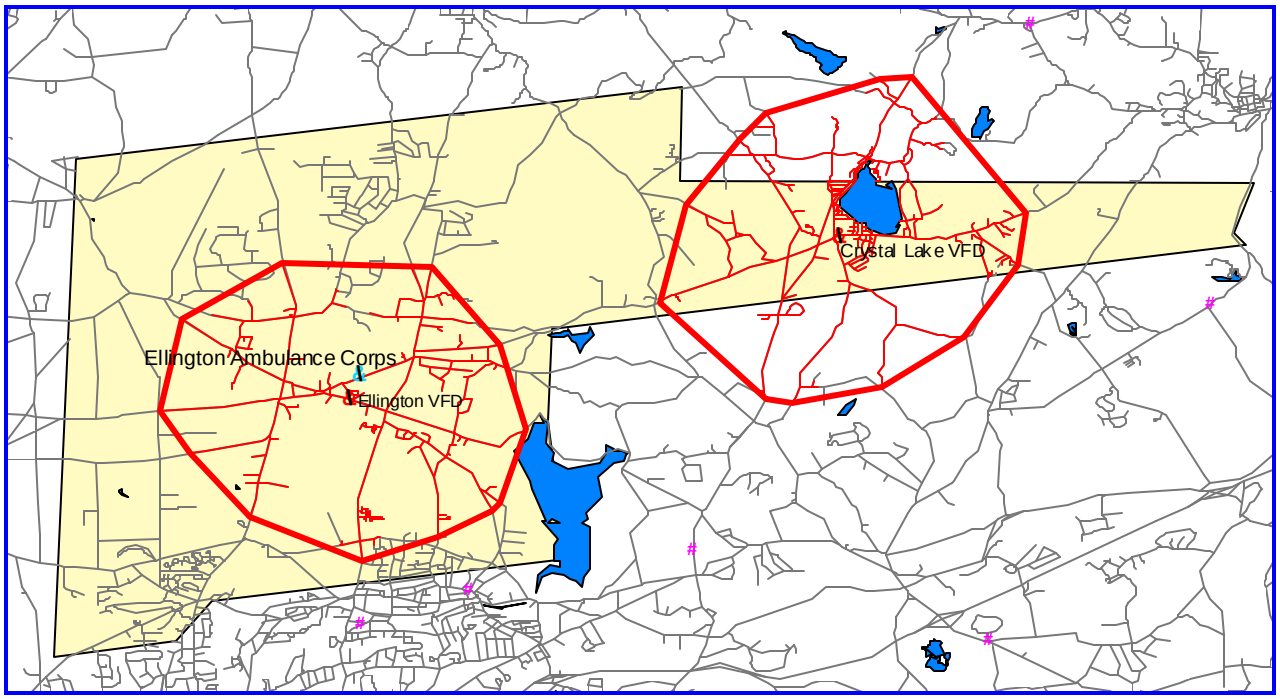
Figure 15: Current Station Deployment



We will begin with an analysis of the facility deployment for fire response. The map in figure 16 demonstrates the current geographic-based coverage of the Town's two fire stations by plotting the six-minute (red) response time footprint for the existing stations. The plot uses a two-minute turnout time allowance for volunteer response to retrieve the apparatus. This six-minute response footprint is slightly larger than the 1.5 mile travel zone used by the Insurance Services Office (ISO) for optimum

community fire protection scoring in engine company distribution, but is a reasonably common performance target for suburban communities.

Figure 16: Current Fire Station Six-minute Response Footprint

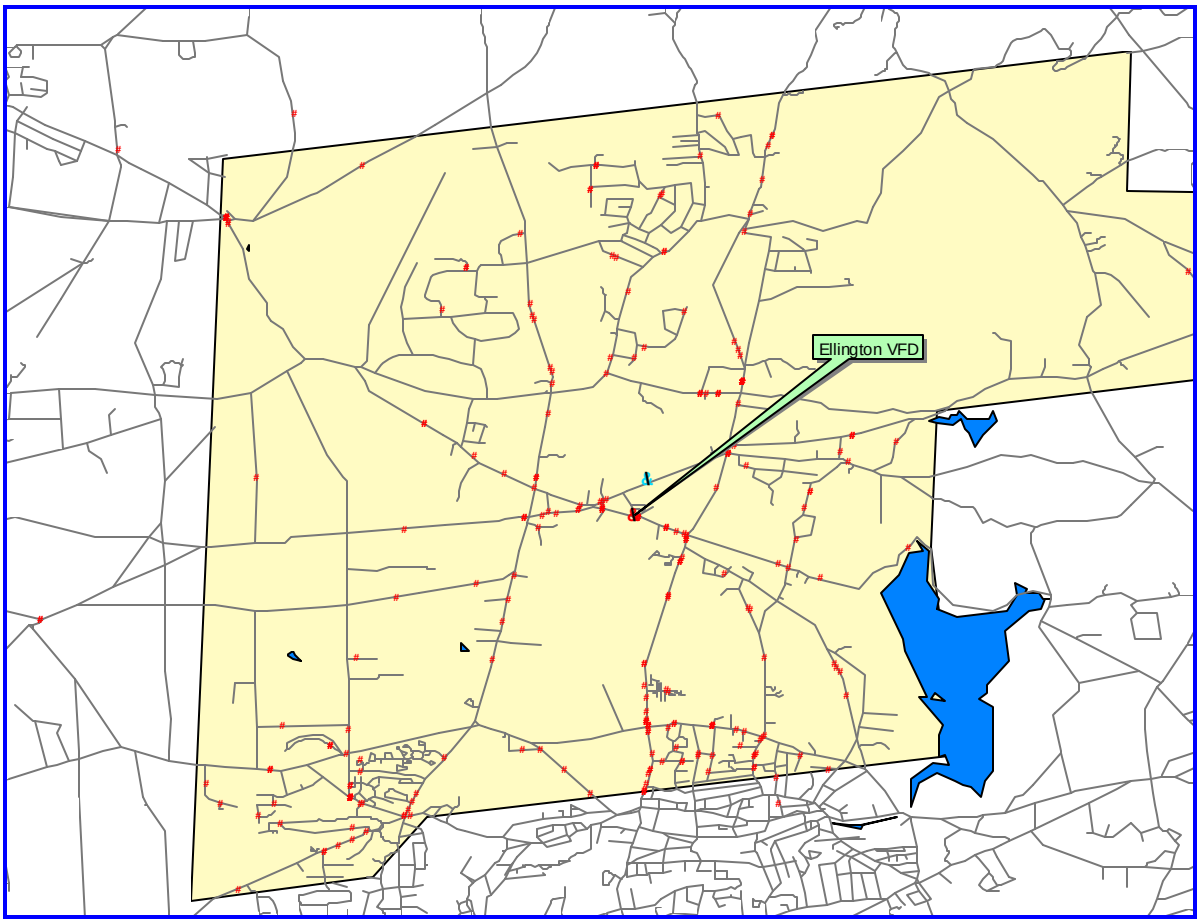


KEY: **red** street areas within six-minute travel time

What is visually evident from the map in this figure is that less than two-thirds of the developed streets within the current limits of Ellington are also within a six-minute response time of a fire station. This is good indication that additional, well-located facilities to provide improved geographic-based coverage may be needed in the future.

In order to analyze service demand-based coverage, we plotted the incident locations for a one-year period on maps to demonstrate their relation to current facility locations. These graphics provide a visual demonstration of call volume and service demand by geography. Service demand for Ellington Volunteer Fire Department appears in the following figure.

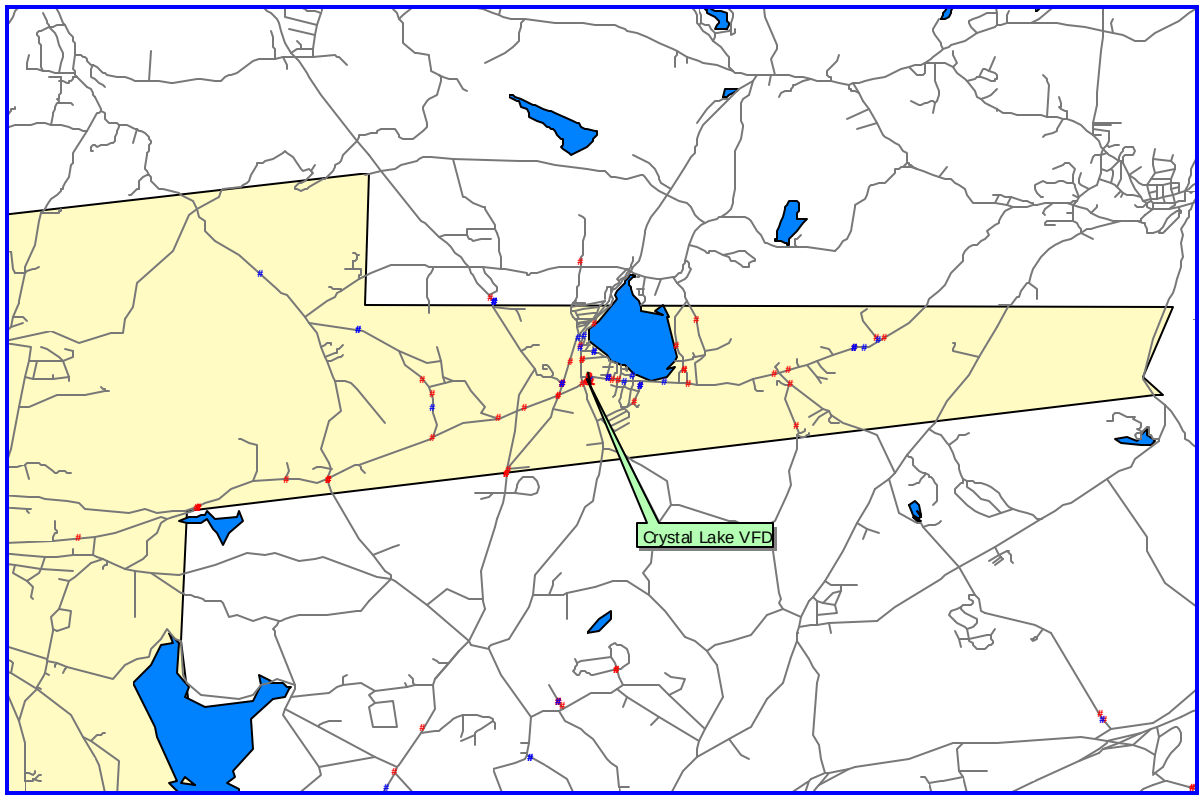
Figure 17: EVFD Fire Incident Service Demand- 2002



This map also demonstrates that significant service demand exists in both the areas along the south town limits of Ellington, as well as the north area of the district beyond the six-minute response of the current station. Little service demand currently exists in the far west sections of the area.

Service demand for Crystal Lake Volunteer Fire Department appears in the following figure. Because CLVFD acts as a first-responder to EMS calls in its area in advance of EVAC, we have plotted their EMS incidents as well. Fire incidents are in red, EMS in blue.

Figure 18: CLVFD Fire and EMS Incident Service Demand- 2002



CLVFD's service demand is quite concentrated in the immediate area of the lake community. Most of this service demand is within their six-minute response zone.

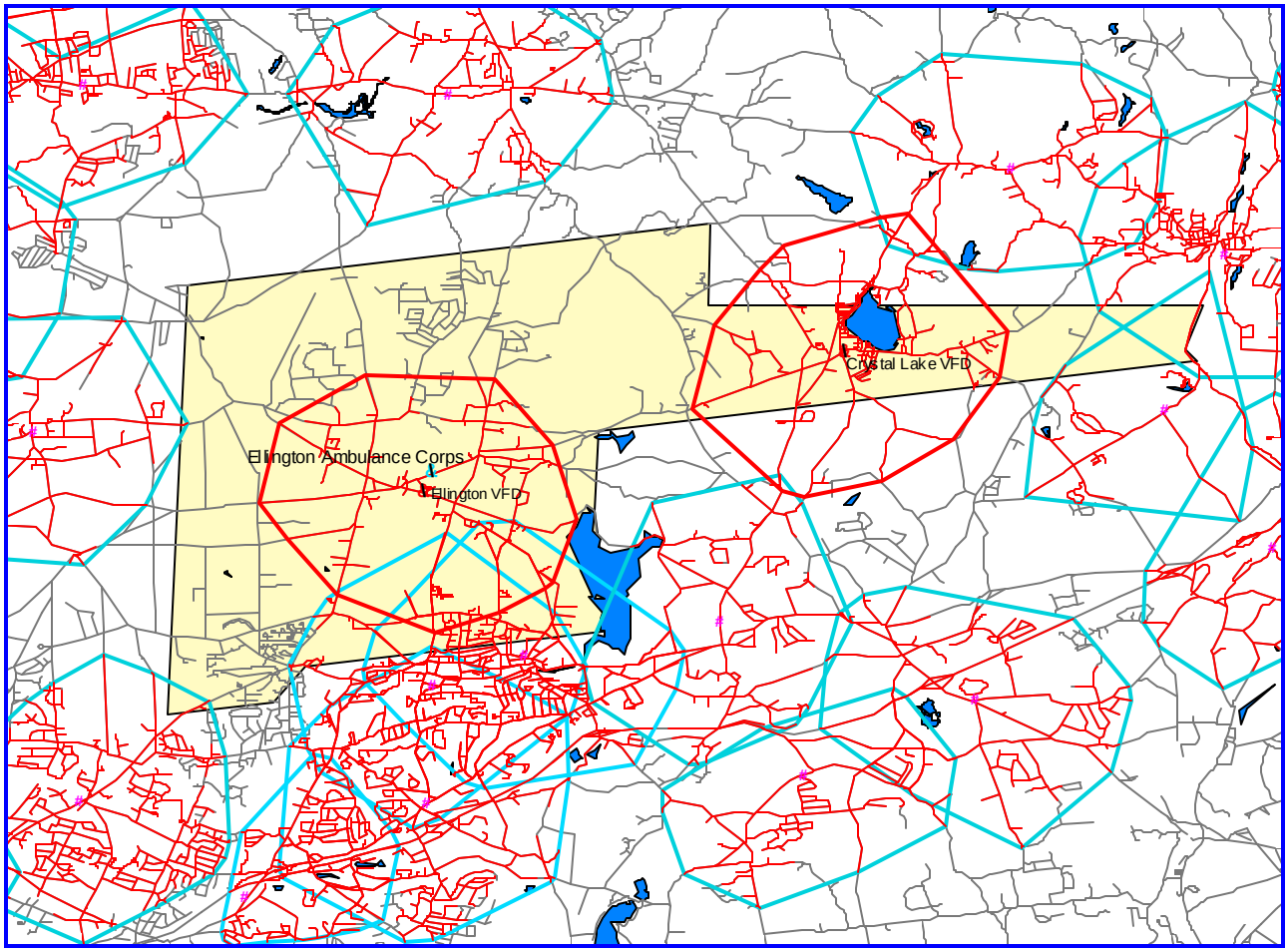
Based on interviews with the Planning Department's staff at the Town of Ellington, it can be anticipated that additional residential and light commercial development of the southern sections of the district (along the major transportation corridors) will ultimately impact the community's service demand. It is also anticipated that some aggressive residential development will ultimately occur north of the old village areas in the vast agricultural lands that provide environmental amenities buyers often desire.

Therefore, strategies should be considered for improved coverage of new development that may occur both south and north of the old village areas of the Town of Ellington. This report will identify two primary facility locations for consideration. For purposes of strategy development, the report considers the potential future development of all areas along the south border of Ellington, and in the areas north of the old village.

Prior to analyzing new locations for station deployment, it is important to recognize existing facilities that could, or should, be utilized in the overall deployment scheme to meet the effective performance the Town is seeking. It has been proven time and again that emergency service facilities, even when not owned by the entity in question, can provide first-line services through methods such as automatic aid, cooperative service agreements, or first-response contracts. Even the Insurance Services Office will recognize many such agreements in the same manner as owned facilities and resources for purposes of community ratings. These possible alternatives must be examined as very real possibilities for service delivery in order to avoid redundancy in facility deployment.

For this reason, we next plotted the six-minute response footprints of all of the adjacent fire facilities around Ellington and examined how these could, if utilized in first-response status, positively impact or meet the Town's service objectives. The following figure shows these plots.

Figure 19: Adjacent Facility Six-Minute Response Footprints



What is visually evident from this figure is that two of the adjacent fire station locations can provide efficient service and response to the southeastern sections of the Town of Ellington. An additional facility that would duplicate or be redundant to the current services would not be advised. Instead, negotiations should begin immediately to obtain first-response services on all incident types from the adjacent Town of Vernon, inclusive of all areas east of Pinney Road and south of Windermere, Lower Butcher, Middle Butcher, and Lower Butcher Roads. This arrangement would create immediate and significant improvement in over **15%** of all of EVFD's current fire incidents and could, if utilized in EMS first response, have immediate and significant improvement in over **12%** of all of EVAC's current medical incidents.

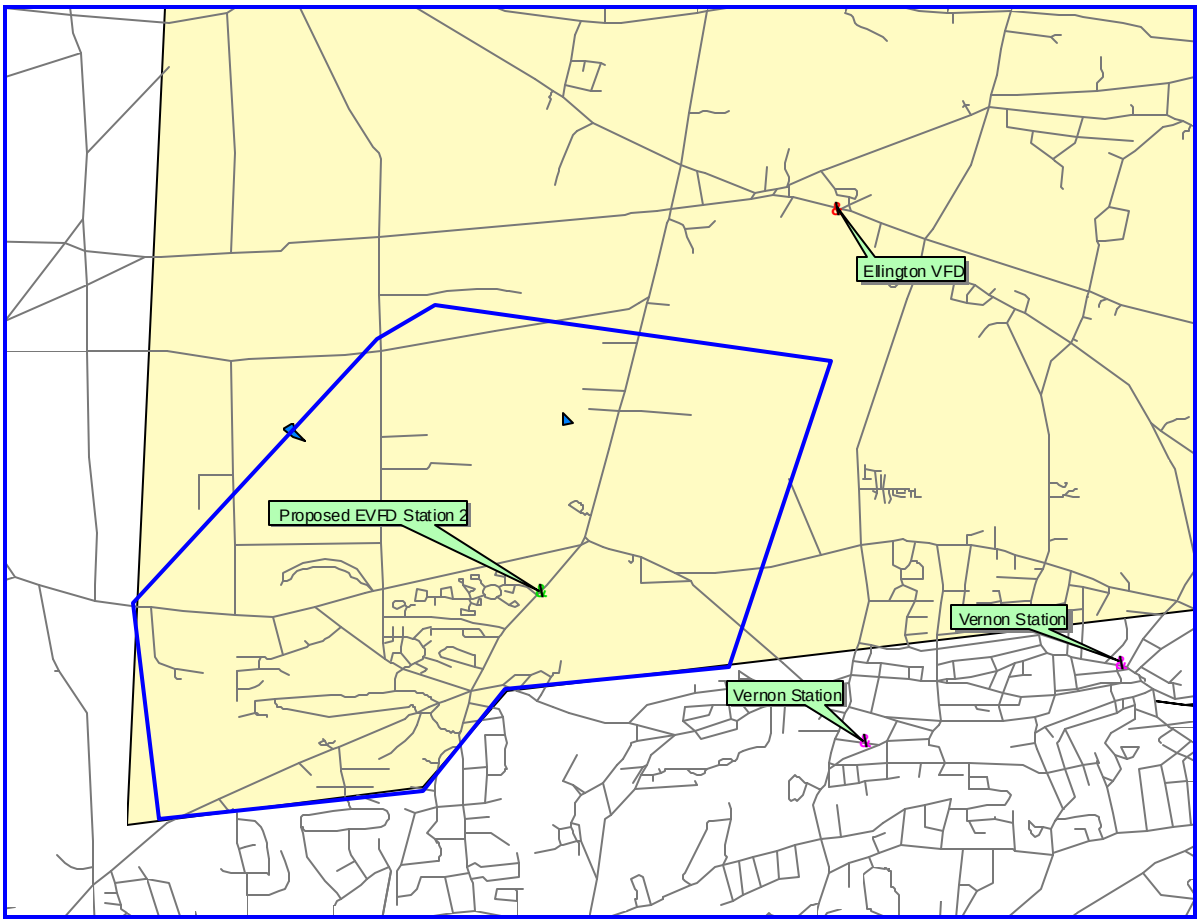
Even with such an arrangement in place, there are no existing facilities that have the potential for improving services in the southwestern section of Town. Since significant service demand exists in that area, it is necessary to determine the effectiveness and impact of an additional facility.

FACILITY LOCATION STRATEGY "A"

This deployment option is for development of a facility on a currently owned parcel of land located in the southeast portion of the Town, near the Cornfield Apartments off Rt. 286.

In considering the new site, computer modeling was utilized to determine the effectiveness, balancing both geographic and service demand coverage across the area considered in the study. A six-minute response time objective was utilized in this model. Figure 20 provides the visual demonstration of Strategy "A".

Figure 20: Facility Deployment Strategy "A"



KEY: *Proposed station is shown as green pentagon, six-minute potential first-response coverage as blue polygon.*

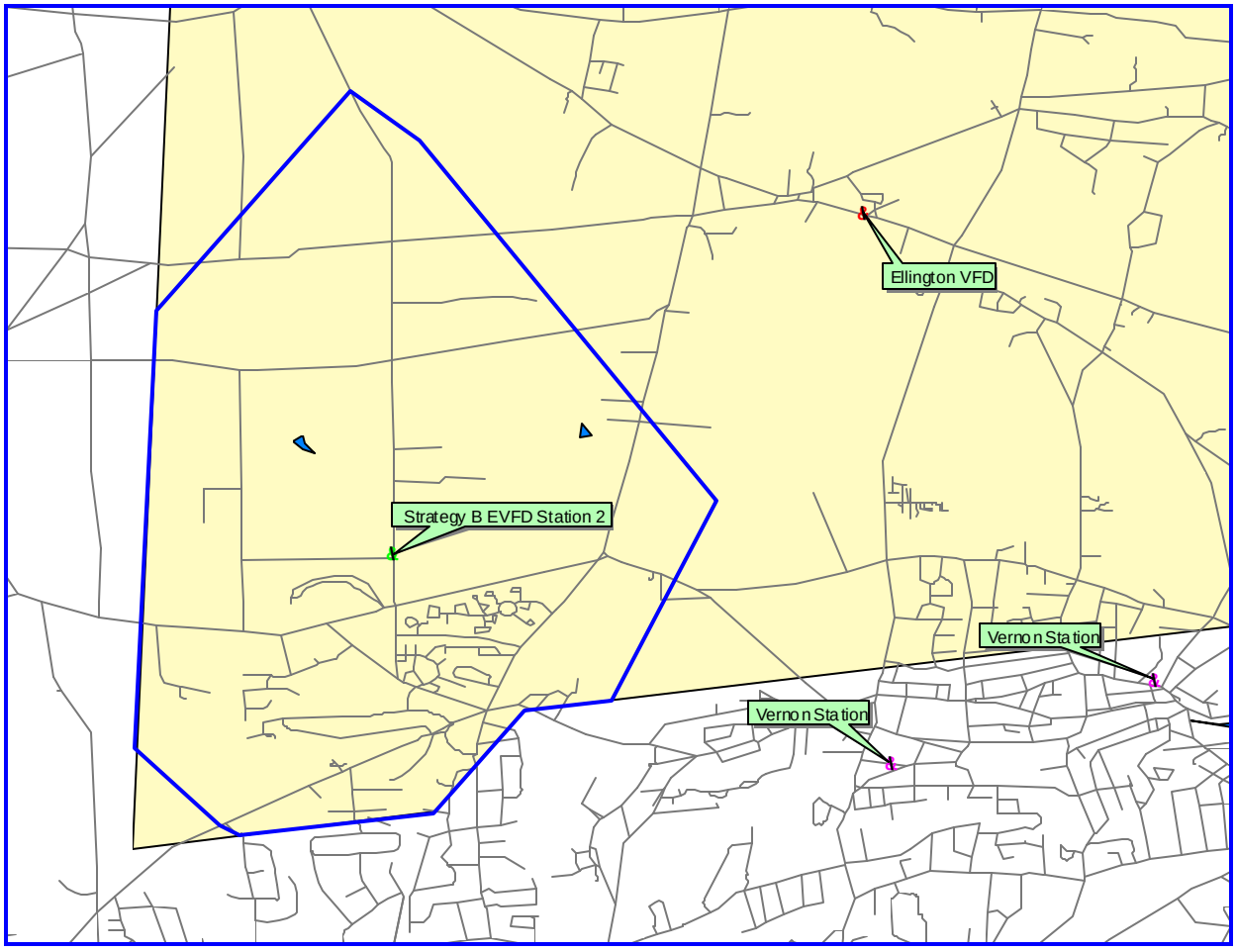
The proposed location provides good coverage of the areas that were outside of the six-minute response of the current EVFD facility or any of the adjacent Vernon stations. After plotting the station's likely first-response area, based on closest station dispatch, the service demand impact was calculated using 2002 incident data. The station's likely first-response assignment area would have included **15%** of the department's fire incidents from 2002 and could have, if utilized in EMS first response deployment, included **12%** of EVAC's medical incidents. The station would serve approximately **22.09 miles** of roads within six minutes, 25% less than the current EVFD station's 28.6 road miles within six minutes.

FACILITY LOCATION STRATEGY "B"

This deployment option is for development of a facility in the southeast portion of the Town on a parcel of land that would need to be obtained somewhere in the near vicinity of Standish Road and Abbott Road.

In considering the new site, computer modeling was utilized to determine the effectiveness, balancing both geographic and service demand coverage across the area considered in the study. A six-minute response time objective was utilized in this model. Figure 21 provides the visual demonstration of Strategy "B".

Figure 21: Facility Deployment Strategy "B"



KEY: *Proposed station is shown as green pentagon, six-minute potential first-response coverage as blue polygon.*

As with Strategy "A", the proposed location provides good coverage of the areas that were outside of the six-minute response of the current EVFD facility or any of the adjacent Vernon stations. Strategy "B" differs from Strategy "A" in that it shifts first-response coverage further west and north along the Town boundaries.

After plotting the station's likely first-response area, based on closest station dispatch, the service demand impact was calculated using 2002 incident data. The station's likely first-response assignment area would have included **14%** of the department's fire incidents from 2002 and could

have, if utilized in EMS first response deployment, included **12%** of EVAC's medical incidents. The station would serve approximately **27.69 miles** of roads within six minutes, just 3% less than the current EVFD station's 28.6 road miles within six minutes and 25% greater than Strategy "A".

The decision on deployment of a new facility to improve response coverage must be determined with future development in mind. It is critical not to be caught up in the building trends of today simply because they are very real and visible on a daily basis. The station is intended to serve the area for many years into the future. Thus, we recommend that any decision be made through close cooperation and input from the Town's Planner, Selectmen, and even local developers who have an eye on their industry's trends in the area. While either Strategy "A" or "B" provides for improvement in deployment, Strategy "B" presents some advantages and should be considered for its future coverage of potential development northward along the western boundary of the Town.

FACILITY LOCATION STRATEGY "C"

This deployment option is for future development of a facility in the northern portion of the Town on a parcel of land that would need to be obtained on a future extension of Dogwood Lane near Jobs Hill Road. In order to be effective, this strategy also recommends that the Town strongly consider the addition of two roadway segments that will significantly impact the future delivery of emergency services from such a facility, were it to be developed.

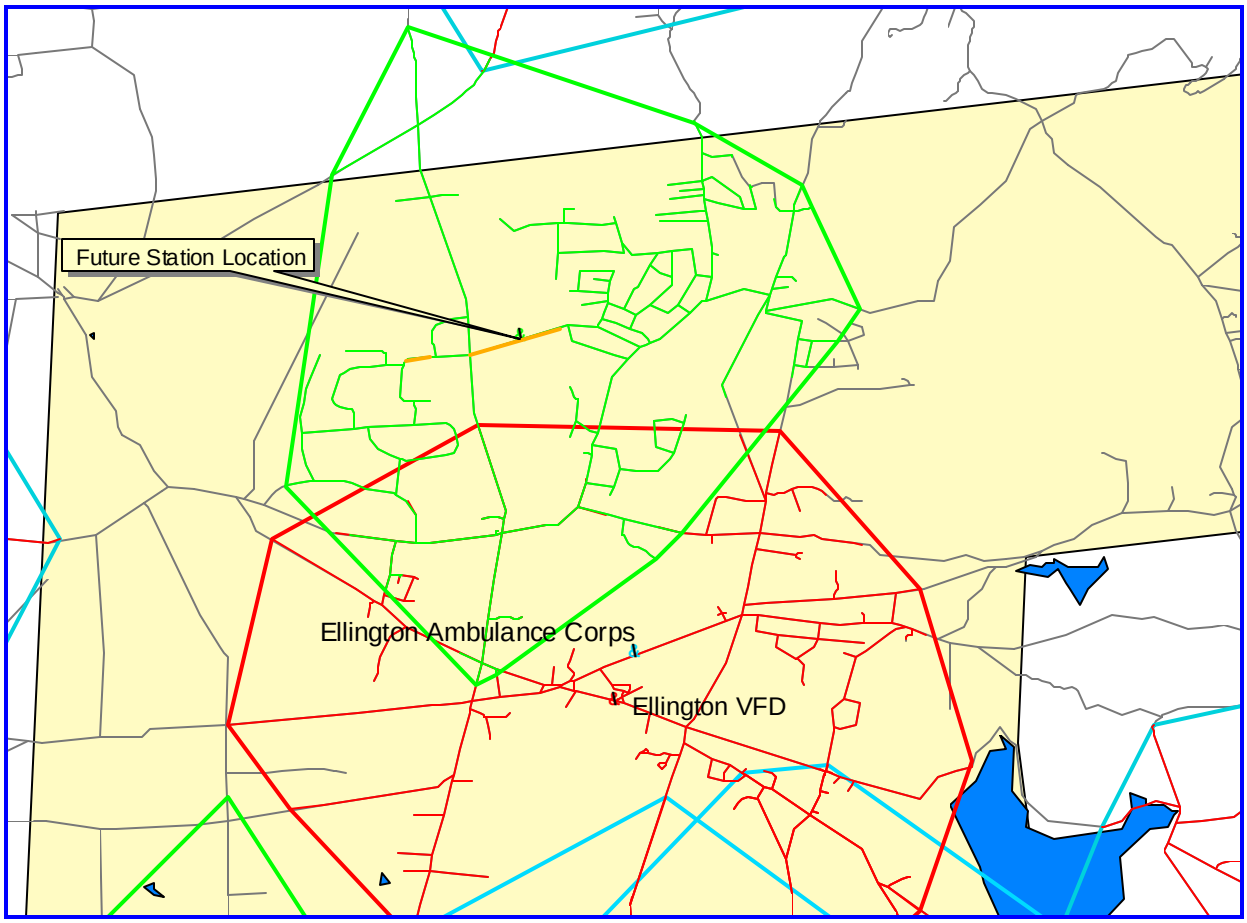
The Town of Ellington has an opportunity to make planning decisions now that will positively impact emergency service delivery in the future. This report has already made clear the importance of response time to incident outcome. In order for any emergency service facility to have the most efficient and effective response times, the road corridors must, whenever possible, facilitate efficient movement of apparatus. While this is not always possible because of topography, we believe Ellington has such an opportunity facing it in the future.

The Town should consider a roadway connection between the end of Dogwood Lane to Jobs Hill Road. This would permit a well-placed facility to provide efficient service to major development corridors along both Jobs Hill Road and Hoffman Road. An additional extension connecting Brookview Drive and Brook Crossing would permit such a facility to quickly serve the developments north of Muddy Brook Road.

In considering the future site, computer modeling was utilized to determine the effectiveness, balancing both geographic and service demand coverage across the area considered in the study. A

six-minute response time objective was utilized in this model. Figure 22 provides the visual demonstration of Strategy "C".

Figure 22: Facility Deployment Strategy "C"



KEY: *Proposed station is shown as green pentagon, six-minute potential first-response coverage as green streets and polygon. Recommended road extensions are shown in gold.*

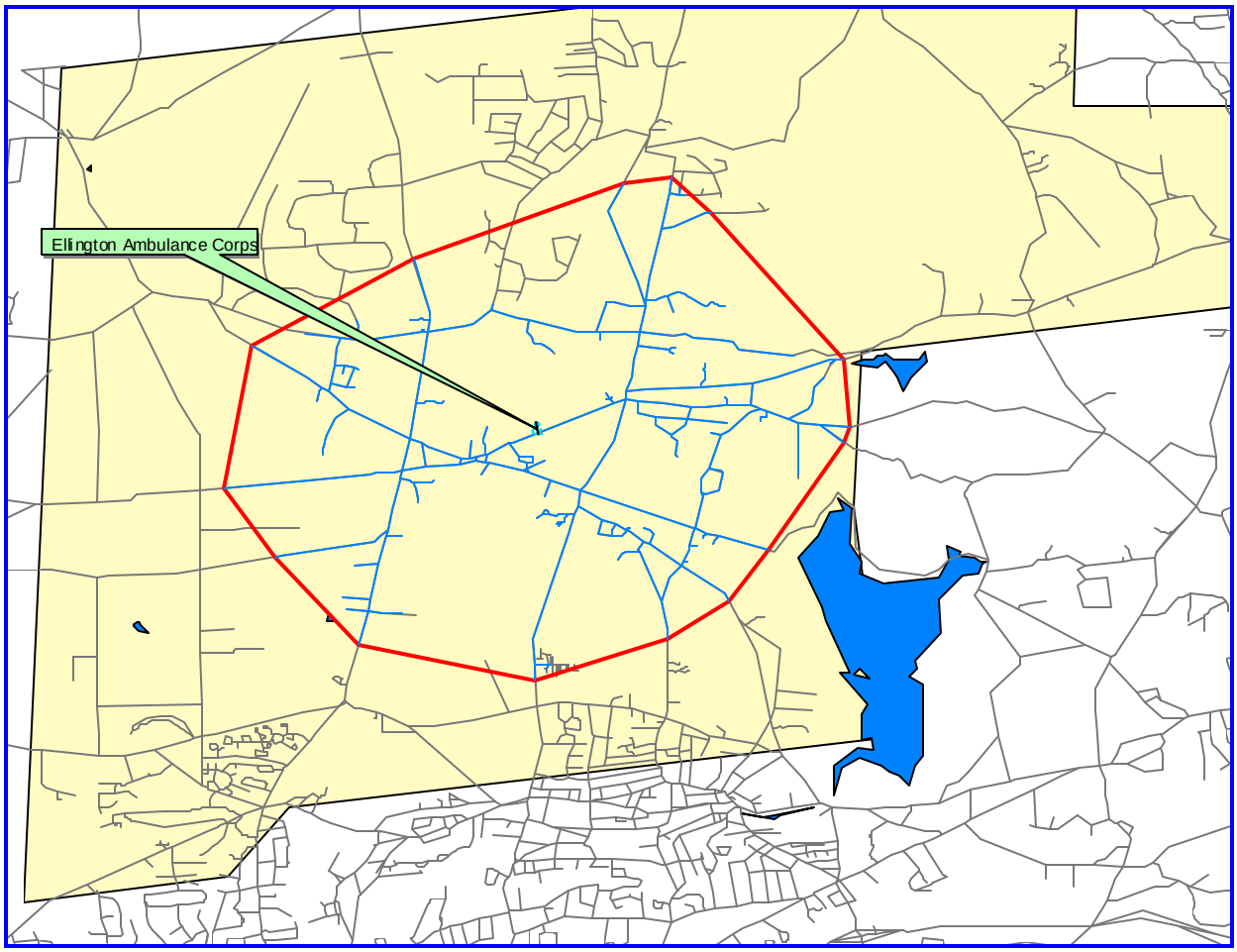
The proposed location provides good coverage of the areas that were outside of the six-minute response of the current EVFD facility or any of the adjacent stations. After plotting the station's likely first-response area, with the recommended road extensions in place, the service demand impact was calculated using 2002 incident data. The station's likely first-response assignment area would have included **9%** of the department's fire incidents from 2002 and could have, if utilized in EMS first response deployment, included **12%** of EVAC's medical incidents. The station would serve approximately **22.75 miles** of roads within six minutes.

Analysis of Strategy "C" demonstrates that this potential station location has slightly less potential impact, by 2002's numbers, than Strategy "A" or "B". As a result, we could conclude that the

development of this station should be a lesser priority. However, trends in development could quickly change the situation. Again, the decision on possible deployment of the station suggested in this strategy should be made in close consultation with the Town Planner and the developers in the area.

We now direct our attention to EMS response deployment. The map in figure 23 demonstrates the current geographic-based coverage of the Town's EMS ambulance station (EVAC) by plotting the six-minute (red) response time footprint for the existing station. The plot uses a two-minute turnout time allowance for volunteer response to retrieve the apparatus.

Figure 23: Current EMS Station Six-minute Response Footprint



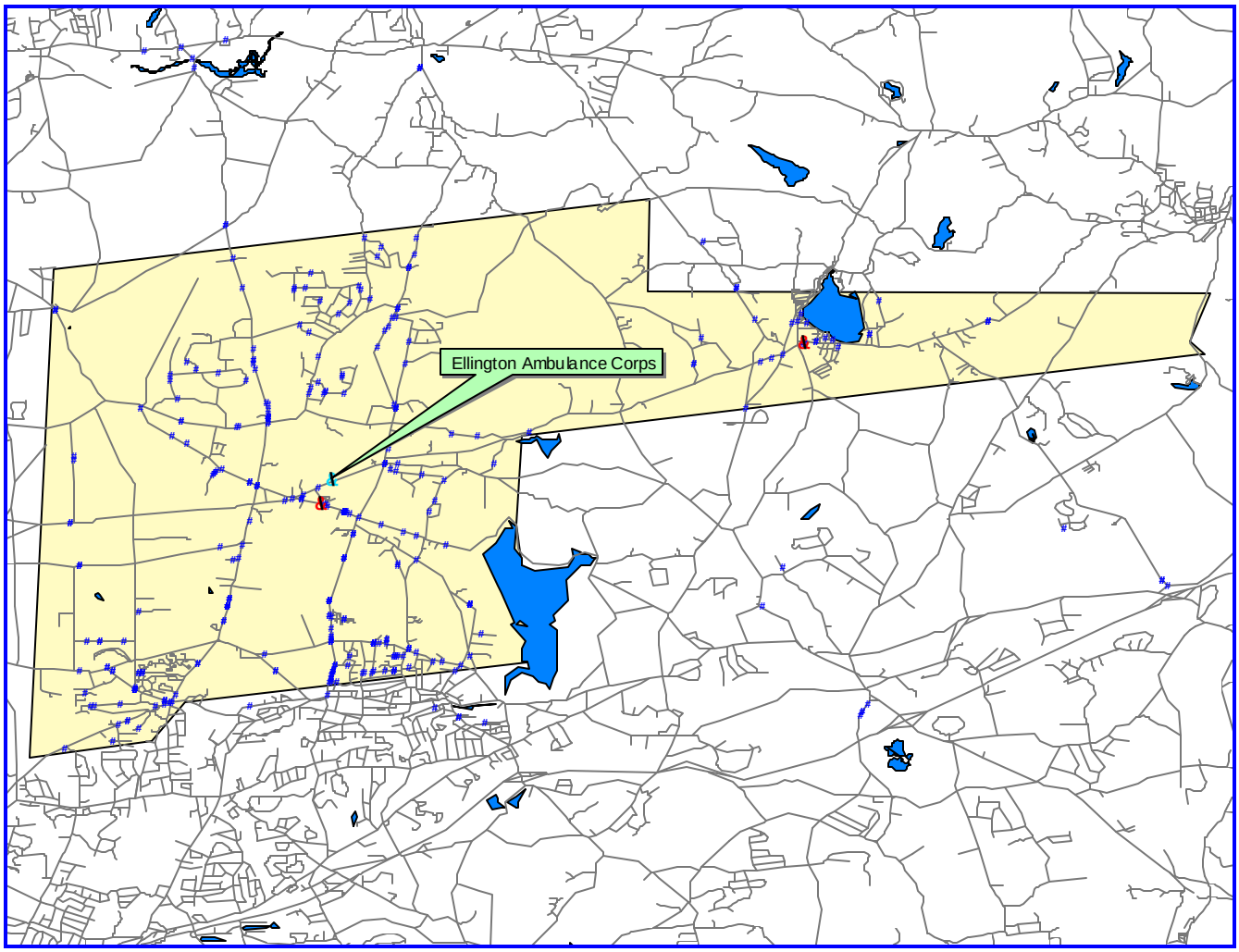
KEY: **blue** street areas within six-minute travel time

What is visually evident from the map in this figure is that less than one-third of the developed streets within the current limits of Ellington are also within a six-minute response time of the EMS station. This is a good indication that additional, well-located facilities to provide improved coverage are necessary.

It should be noted that the Crystal Lake Volunteer Fire Department is already providing first-response EMS service to its response area, an invaluable improvement in the provision of life-saving EMS response in the far eastern areas of the Town. It is not our intent to overlook the fact that EVFD is also available for EMS response, but due to the current location of its station in immediate proximity to EVAC's, the first-response benefits are limited to those instances where EVFD's turnout time might be faster than EVAC's turnout time.

In order to analyze service demand-based coverage, we plotted the incident locations for a one-year period on maps to demonstrate their relation to current facility locations. This graphic provides a visual demonstration of call volume and service demand by geography. Service demand for EVAC's ambulances appears in the following figure.

Figure 24: EVAC EMS Incident Service Demand- 2002



This map demonstrates that significant service demand exists in both the areas along the south town limits of Ellington, as well as the north area of the district beyond the six-minute response of the current station. Again, little service demand currently exists in the far west sections of the area.

Redundancy in emergency service facilities is extremely costly. In analyzing current facility locations, we would typically comment that the EVFD station and the EVAC station are extremely redundant and the facility needs should be combined. As outside consultants, we take little note of the obvious differences in ownership, the multiple private corporations involved, and the potential cultural differences of the organizations and focus instead on the pure cost-effectiveness of the service delivery. If multiple emergency services can be delivered from the same facility, redundancy is eliminated and cost it reduced.

In this instance, however, we do take note of the unique use of high school students for the response of ambulances during certain times of the day. According to interviews, this was, in fact, one primary reason the EVAC station was located next to the high school. It may also justify the redundancy of this facility in relation to that of EVFD. Aside from this, however, there would be little to justify two facilities located in such close proximity to one another. This report will address other issues that may impact this redundancy elsewhere in the report.

In analyzing future EMS station locations, we are once again able to see an impact from the proximity of the current EVAC facility to the EVFD facility. What this means is that efficient deployment of EMS services can be accomplished with identical deployment strategies as the future fire service. This is ideal in that redundancy is effectively eliminated. For this reason, we recommend that any future emergency facilities be funded ONLY upon agreement by all parties involved that they will serve the needs of any and all emergency response services to the Town of Ellington. EVAC resources should, thus, be co-located in future fire stations. As an alternative, a consistent first-response EMS provision should be made from those facilities.

Recommendations

- Adopt a basic service philosophy and response time performance standard for the Town of Ellington.
- Immediately initiate first-response agreements or contracts for closest unit dispatch from Vernon stations to areas east of Windermere Avenue and south of Lower, Middle, and Upper Butcher Roads to provide initial response for all call-types. These facilities are better located to serve these areas of the Town.
- All future facilities should be developed to include provision of all emergency services, including fire, EMS and, where appropriate, law enforcement. Redundancy of facilities should be considered unacceptable.
- Deploy an additional facility in the southwestern area of the Town, selecting between recommended Strategy "A" or "B" only after close consultation with Town Planners and local developers to determine growth trends.
- Consider the initiation of Strategy "C" station deployment for a point in the future, to be determined by continuing development and increased service demand.
- Consider initiating the road extensions recommended in Strategy "C" in order to facilitate future efficiency and effectiveness of a northern facility.
- Develop a long-range facility plan based on a chosen deployment strategies to handle all projected growth and development within the Town of Ellington service area.
- Initiate efforts to secure appropriate property in accordance with the deployment strategies chosen.

Facility Development

As fire stations are built or remodeled, functionality should be considered in order to minimize any facility deficiencies discussed elsewhere in this report. Proper design of a fire station is very important. Poorly designed stations can lead to high maintenance costs, lack of functionality, and can actually impede prompt response. A number of activities occur within a station. Adequate space needs to be provided for these activities.

While the design of a floor plan is best left to a qualified architect, the physical space requirements for a functional fire station are readily identifiable. The following chart identifies those spaces by function and size that should be included in a properly designed fire station, based on the collective experiences of the fire service professionals serving at ESCi.

Figure 25: Table Of Square Footage Needs For Fire Station Design

Space Description	Size	Square Feet
Administration		
Entry Vestibule	5x8	40
Communications/watch room	10x10	100
Storage	6x8	48
Living Quarters		
Dayroom/classroom	20x20	400
Kitchen	12x15	180
Dining area	12x15	180
Sleeping rooms	8 @ 10x12	960
Washroom – men's	12x15	225
Washroom – women's	12x12	144
Locker room – men's	10x15	150
Locker room – women's	10x15	150
Utility storage	8x12	96
Supply storage	8x8	64
Laundry room	10x10	100
Physical fitness room	15x20	300
Apparatus Room		
Apparatus bays (2)	40x60	2,400
Tools and parts storage	8x10	80
Equipment decontamination room	8x12	96
Hose tower	8x12	96
Hose storage	8x10	80
Turnout storage	8x15	150
Site maintenance storage	10x10	100
Subtotal of room/space sizes		**6,139**
Plus 20% of office/quarters for circulation		**627**
Total Recommended Square Feet of Space		**6,766**

At an estimated construction cost of $150.00 per square foot, these stations should cost approximately $1,014,900 plus land and site preparation. The actual cost of land at specific sites chosen, as well as the final construction type and quality, will affect the financial estimates. It should also be remembered that this financial analysis is for simple neighborhood fire stations. Buildings that include extensive office space, administrative divisions or central training facilities would require significant additional square footage.

Resource Deployment

The Town of Ellington maintains a fleet of fire vehicles including six fire pumpers (or pumper-tankers), one tanker, two heavy rescue trucks, two ambulances, two wildland firefighting vehicles, and four specialty/utility vehicles.

In reviewing the apparatus fleet in comparison to target levels established by the Insurance Services Organization for optimum rating, Ellington likely operates far more pumpers than the number required at this time. The pumpers appear to be very well equipped, although a complete inventory should be performed to assure maximum point values for all vehicles during any future ISO rating reviews.

The department's protection area does not currently appear to meet the necessary requirements for aerial truck (ladder companies) 2.5 mile distribution as recommended by ISO, since few buildings would meet the three story height and square footage limits. This should be confirmed through a more thorough review of the latest ISO survey rating details. However, at some future point when additional commercial development has occurred, an aerial piece may become necessary. However, depending on the location of any such development, provision of aerial service by contract with an adjoining district may fulfill the ISO requirement and should be considered.

Both EVFD and, to a lesser extent, CLVFD rely heavily on pumper-tankers for movement of water in non-hydranted areas of their districts. The result is extremely large, heavy and cumbersome pumpers that are difficult to maneuver in some of the rural areas of the Town. This philosophy should be reconsidered.

Water movement in remote areas without hydrants is best performed utilizing a process known as a tanker shuttle. Water tankers are rapidly loaded by a supply pumper at a static water source and move water to the fire, unloading it in temporary storage "dump" tanks for use by the attack pumper(s) at the scene. The efficient movement of water in a consistent flow is dependent solely on the rapid loading and unloading, cumulative capacity, and travel time of the tankers involved in any such shuttle.

Tankers that also act as pumpers, particularly large-capacity pumpers, must carry all the same equipment to fulfill the requirements of an engine company and can rarely be designed with the greatest efficiency in loading and unloading as a tanker. Likewise, the added weight and size detracts from the mission of a water tanker intended primarily for rapid water movement. Finally, the array of equipment on a pumper that is also acting as a shuttle tanker is often unavailable to the firefighters at the fire scene because the truck is busy moving water.

EVFD and CLVFD should consider the use of more efficient tankers designed with a prime mission of rapid water movement in a tanker shuttle. Tanker shuttles for deployment in all areas of the town should be designed and planned in advance with written deployment schemes, pre-designated static

water points, and apparatus assignments. In doing so, the departments may wish to divert from the current philosophy of water movement involving large-capacity pumper-tankers.

In considering this philosophy, the Town of Ellington may wish to decline the funding of additional pumpers for which a significant mission is described as water movement. The Town of Ellington has a more than adequate number of pumpers. Instead, the Town should advocate the development of a comprehensive water movement plan for the entire fire protection area with specific calculation of flow capacity, in gallons per minute, based on pre-designated water shuttle operations. The International Fire Service Training Association has several good documents and video training programs available on water shuttle operations.

Between EVFD and CLVFD, the Town maintains numerous specialty and utility vehicles. There appears to some redundancy in these units, as well as extremely narrow use. EVFD maintains a separate rescue squad for extrication, a pick-up truck for medical response, a modified Hummer for wildland response, and a second pick-up truck for towing of trailers. CLVFD maintains a light rescue truck for EMS response and a separate utility truck for moving “troops”. Since the cost of maintenance and upkeep for any motorized apparatus is significant, opportunities should be sought to combine the use of vehicles wherever possible.

For instance, in many jurisdictions, emergency medical response by the fire department is made from an existing engine company. Even advanced life support services are provided from engine, truck, or rescue companies on a daily basis. Small utility trailers and boats have been pulled by rescue squads, wildland vehicles, or even engine companies. When considering the lack of appropriate bay space and the ongoing cost of maintenance, consideration should be given to combining the equipment and mission from one vehicle to another in the fleet wherever possible. This would allow a fleet reduction and could likely be accomplished through extremely efficient space utilization and mounting systems.

EVAC maintains two transport ambulances. Each meets the minimum applicable standards and is suitable for the delivery of both basic and advanced life support services.

Recommendation

- A complete inventory should be performed on all apparatus to assure maximum point values for vehicles during ISO rating reviews.
- Consideration should be given to initiating improved water shuttle planning and practice.
- Use of more efficient shuttle tankers should be considered over larger pumper-tankers.
- Consider a reduction of the fleet by combining missions and relocating equipment from multiple specialty/utility vehicles.

Emergency Medical Response Systems

The Crystal Lake Volunteer Fire Department is currently a licensed emergency medical first responder agency under the laws of the State of Connecticut. As such, the department is not currently authorized to provide medical transport services, but can provide initial "first-responder" medical aid supported by the "second-due" transport ambulance provider, EVAC. This arrangement makes sense in that EVAC's resources are housed and deployed from a single location at the station by the high school. CLVFD can typically make a faster response to a medical incident in their area simply by the closer distance of their facility.

EVFD is also able to provide medical aid in their response area, but since their station is only a couple of blocks from EVAC, EVFD does not carry the same first-responder agency status as CLVFD. EVFD is, however, a licensed first responder agency and provides response and support to EVAC, particularly for life-threatening calls that may require higher levels of manpower.

All Ellington agencies are backed up by a third tier in the medical response system, a Paramedic unit that typically responds from the neighboring town when advanced life support (ALS) services are likely to be needed. This unit responds upon the receipt of a radio request for ALS from units on the scene, but often gets a head start toward such incidents by monitoring radio traffic and initiating a response on incidents with anticipated ALS need. The paramedic unit and the Ellington agencies share the same medical director, which typically improves cross-training and the integration of coordinating medical protocols.

The arrangement described above does seem to provide the Town of Ellington with a reasonably efficient system of rapid medical response and the ability to ramp up the level and complexity of that medical care as the need arises.

One future consideration that should be made is for the placement of a medical transport ambulance in the CLVFD station. Since the department is already responsible for initial medical response and care, it would be a short stretch to move toward independent transport capabilities. This would eliminate the need for a lengthy response of a transport unit from the EVAC station several miles away. The transport service could either be initiated as an additional service of CLVFD or in some form of consolidated effort with EVAC under their current license. Either way, the transport capabilities of the Town would be more uniformly distributed geographically.

We suggest this as a *future* consideration primarily because EVAC currently utilizes daytime paid staffing to maintain consistent response capabilities. If the use of the paid staffing made the response of an EVAC transport unit far more consistent than any CLVFD transport unit that relied solely on volunteers, the arrangement might be counterproductive. However, this concern should not preclude the establishment of a transport unit at CLVFD. That department has had a reasonably good history of effective medical response, even during weekdays. The CLVFD transport unit could be dispatched with the EVAC paid staff responding as back-up in the event the CLVFD unit was unable to respond.

Recommendation

- The fire departments should be fully recognized for their potential role in advancing the area's emergency medical services.
- Consideration should be given to placing a transport ambulance at CLVFD for use by the EMT's at that department.

Hazardous Materials Response

The fire departments in Ellington are trained and equipped to provide hazardous materials response at the "Operations" level. This level permits defensive operations for purposes of containment, but does not permit aggressive forward tactical efforts focused on corrective action, clean-up, or handling of hazardous substances (with a few exceptions)[10]. EVFD has 28 personnel certified at the Operations level of training and CLVFD has 7. Some limited equipment for purposes of containment and decontamination, as authorized at the Operations level, is carried on various vehicles in the system.

[10] OSHA CFR 1910.120(q)(6)(ii)

In addition, EVFD has 5 personnel certified at the Technician level of training. While this certification level permits those personnel to be involved in tactics[11] beyond the Operations level, such activities are only permissible with adequate and proper equipment and sufficient backup personnel trained at an equal level. With only 5 technician level personnel and limited equipment and supplies, these constraints would typically limit EVFD from performing extensive Technician-level activities.

EVFD's Standard Operating Guidelines provide a section (4.6.4.1) setting out procedures by which each hazardous materials incident is classified. The classification system (Level I, II, and III) is a well-accepted industry standard and is intended to differentiate incidents which can be handled by personnel certified at the Operations level (Level I) and those which require the use of Technician level tactics (Level II and III). While this guideline is an excellent start, the procedure manual does not go on to provide information or direction as to what steps are to be enacted when the incident is declared a Level II or Level III incident. Without this direction, Operations level personnel might not be properly constrained from performing tasks and functions beyond their level of training and certification. Direction is not provided in the procedure for obtaining Technician level personnel and equipment, from where they are to be obtained, or how those resources would integrate into the EVFD resources and efforts.

This standard operating procedure for hazardous material incidents should be expanded to include further directives for Level II and III incidents, including permissible activities of Operations-level personnel and methodology for integration of outside resources. In addition, the standard operating procedure should be adopted in similar format and content by CLVFD and EVAC as well.

Of primary concern here is that each agency should have firm procedures in place to limit any personnel from performing tasks and functions that would be considered above their level of training and certification at incidents involving hazardous materials release. Such incidents are strictly governed by the regulations established by the Environmental Protection Agency, many of which have subsequently been adopted by other federal and state agencies, such as OSHA, for enforcement. Violation has, in many cases, resulted in stiff fines or penalties and formed the basis for later civil litigation.

As an example, personnel not trained beyond the Awareness level should not be permitted to respond to hazmat incident dispatches, but rather should be directed to remain in an off-site support mode.

[11] OSHA CFR 1910,120(q)(6)(iii)

This is because the Awareness level of training is intended to enable an individual to recognize an incident involving a hazardous substance and make appropriate notification to authorities, but nothing else[12]. Obviously, once an incident has been reported, such as a fuel leak from a vehicle called in to 9-1-1, the incident has been recognized and moved beyond the Awareness level. The act of dispatching a fire engine presumes action on the part of the responding crew involving size-up, containment, decon or clean-up. Any of these tasks would exceed the training level certified under Awareness. Written procedures should prohibit response by personnel certified by the department at less than Operations level to any incident with a known, suspected, or likely release of a hazardous substance, including fuels and gases.

Since CLVFD has only seven personnel certified at the Operations level, the department's capabilities to perform within the law at any type of hazmat incident, including automobile accidents where fuel has spilled, are severely constrained. The same can be said for EVAC, since medical responders providing services at a known hazmat incidents are typically going to require at least Operations-level capabilities. Recommendations regarding more advanced training to the Operations level are contained in the Training section of this report.

In the State of Connecticut, Technician-level hazardous materials response has traditionally been the responsibility of the Connecticut State Department of Environmental Protection. That agency lists its responsibilities under state law as follows:

- Assist communities in providing 24-hour state-wide emergency response network for spill incidents and releases of hazardous materials and petroleum products.
- Implement the state's spill notification protocol.
- Establish emergency response procedures under the Incident Command System.
- Coordinate on-scene spill response as defined in state Operations Executive Order 24 .
- Promotes emergency scene safety.
- Protects environmental public health and safety by rapid mitigation of hazardous material incidents.
- Supports other agencies in their investigatory activities by providing equipment and trained personnel to monitor and mitigate hazards.

While this does serve to spread the cost of hazmat risk remediation across an extremely broad area, it does not promote detailed local planning for more immediate emergency mitigation responses.

[12] OSHA CFR 1910.120(q)(6)(i)

Technician-level response personnel provided by the state respond with limited resources on-board and may be in a variety of locations or activities when called. The integration of these individuals into the local response system planning is extremely limited. When an incident occurs, the local responders rarely know who is responding, how many are responding, from where and how long it will take, and what they will have available with them when they arrive. This system certainly provides a challenge to effective hazardous materials response planning.

The cost of establishing and maintaining a full-blown Hazardous Materials Response Team capable of mitigating all types of hazardous substance incidents at the Technician or Specialist level is astronomical. Establishing such teams in all but the largest of metropolitan departments is ill-advised from the standpoint of cost, necessary personnel, and ability to retain skill levels. Instead, the development of regional hazardous materials mitigation programs is encouraged in order to take advantage of a larger manpower pools and greater resources, while spreading the cost across a larger area.

The Town of Ellington should continue to maintain efficient capabilities for performing functions at the Operations level for hazardous materials risks most common to their community and should encourage and support any additional efforts at regionalization of advanced hazardous materials response capability.

Recommendation

- SOP's should be established limiting response to hazmat incidents by personnel with only Awareness-level training
- SOP's should be established clarifying and appropriately limiting the tasks and activities that can be performed by personnel with Operations-level training at hazardous materials incidents.
- SOP's should be established clarifying procedures for initiating, maintaining and integrating Technician-level response to hazardous materials incidents.
- The Town of Ellington should encourage and support a regional approach to advanced hazardous materials response.

Homeland Security Integration

Fire department and emergency medical services are considered "First Responders" in the national systems for homeland defense and security. Recent changes in the structure of the federal government have placed even the United States Fire Administration (USFA) under the umbrella of the

Department of Homeland Security. Given this status, emergency service agencies should continue to assess their capabilities for response and integration into larger incidents involving acts of terrorism or threats to national defense.

The Town of Ellington is not a likely primary target for an act of terror by foreign threats. It does not contain sensitive military or government facilities, nor is it home to any high-profile institutions or enclaves of controversial immigrant societies. The town is far more likely to be a secondary, collateral damage area in the event of a significant act of international terrorism. While this may be of some comfort, it should be remembered that acts of domestic terror can also have significant and far-reaching effects on even small communities, and that acts of international terrorism can go awry, as in the case of rural Pennsylvania on September 11, 2001.

From the standpoint of the First Responders, the results of an act of domestic or international terrorism will typically fall into one or more categories:

- Large fire and/or explosion accompanied by fire
- Mass Casualty Incident (MCI)
- Hazardous Substance Release
- Secondary threat (timed or triggered event following arrival of first responders)

Emergency agencies are, to some degree, trained to respond and mitigate the first three categories in this list. However, this statement is not intended to oversimplify the challenges. The resulting incident caused by an act or terror can be much larger, more complex, and more demanding than most local incidents that might fall into these same major categories. Still, the agencies must rely on the same training, procedures, command structures, and strategies that are taught for such incidents.

The primary key to success will be familiarity with response plans for such incidents, practice, and integration with other agencies at the regional, state, and federal level.

The agencies within the Town of Ellington have at least some level of planning and procedure in place for large fires, mass casualty incidents, and hazardous substance releases. Additional training on the recognition and response to incidents with likely secondary threats to first responders will continue to help prepare personnel. And, of course, all three agencies should continue to seek out additional, advanced training on the following areas:

- Explosions and threats
- Conflagration fire incidents
- Mass casualty incidents
- Radiation response strategies

- Large-scale quarantine, containment and decontamination
- Hazardous substance response, evacuation, containment, and decontamination
- Regional and federal incident command strategies

As in our discussions within the section of this report entitled Hazardous Materials Response, the cost of establishing and maintaining capability for full response to incidents involving weapons of mass destruction (WMD) is extremely high and best handled through the development of regional programs. This regionalized approach is also encouraged by those federal and state agencies responsible for distribution of grant funding for homeland security programs .The Town of Ellington should encourage and support any additional efforts at regionalization of first responder training and preparation in homeland security issues. In addition, the Town should aggressively seek out and respond to grant opportunities afforded to local communities for first responder equipment and supplies.

Equipment Maintenance

The EVFD is provided apparatus and equipment maintenance and repair service by a combination of entities. The fire department members participate in preventive maintenance and certain light repair work, while heavy chassis or drive-train work is contracted out. A private specialty contractor is utilized for maintenance and repair of the pumps, pump systems, and emergency vehicle bodies. Department members are not Emergency Vehicle Technician (EVT) certified. As a risk management effort, the department should evaluate the professional qualifications of each and every individual who is permitted to do maintenance and repair work on any emergency vehicle. Those not meeting reasonable standards or not properly training and certified, including department members, should not be permitted to conduct maintenance and repairs.

CLVFD and EVAC both utilize a third-party contract entity for all by the lightest of maintenance and repair.

The fire apparatus fleet receives preventive maintenance twice per year and the ambulance fleet receives such service quarterly. Pump preventive maintenance is also conducted twice yearly. For the fire apparatus, an acceptable program would provide a “light” preventive maintenance (fluid changes, lubrication, brake check) at least twice yearly and a “full” preventive maintenance (including filters, pump maintenance, etc.) annually.

Pump flow tests have been conducted annually, as required by ISO for full rating points. Hose testing has occured on a routine schedule and is tracked in accordance with the recommendations for full ISO rating points. Annual ladder testing is conducted.

Recommendation

- Confirm that all vehicle maintenance and repair is conducted by properly qualified individuals.

Risk Analysis

EVFD maintains a computerized record of its responses utilizing commercial software. This is a good system and provides comprehensive information from which to analyze current workload on the department. CLVFD does not computerize its incident records and EVAC utilizes a weak word processor-based data system with no analytical capabilities. For these departments, little analysis is currently being conducted.

The data collected by a good records management system can provide the departments with information on incident volume, staff availability and response time during various days of the week and different times of day. This type of information is important when considering staffing needs and automatic aid programs. Other data can help guide the public education efforts, emergency medical care levels, and even resource purchases.

Recommendation

- Conduct regular and thorough statistical analysis of incident data to predict risks, as well as guide resource and staff deployment.

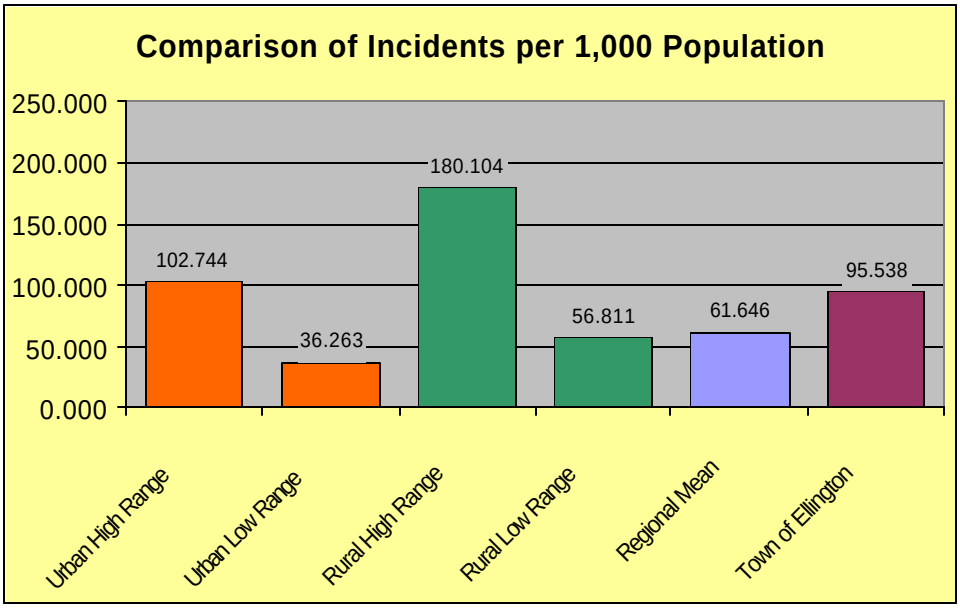
Emergency Response Activity

The Town of Ellington has experienced an increasing number of emergency responses. Some significant increase has been seen in the volume of emergency medical incidents, as well as service calls. This may reflect a changing approach to the use of fire departments within the emergency medical service.

In comparison to other communities of its size within the Northeastern region[13], the Town of Ellington experience a higher number of emergency incident responses based on population. Figure 26, however, shows that Ellington is still well within the typical range of incident volume per population for rural and suburban communities.

[13] Data source for this section is the National Fire Protection Association "U.S. Fire Department Profile", December 2002. This publication breaks down benchmark data into four regions: Northeast, Northcentral, South, and West. Northeastern regional data was selected for this report.

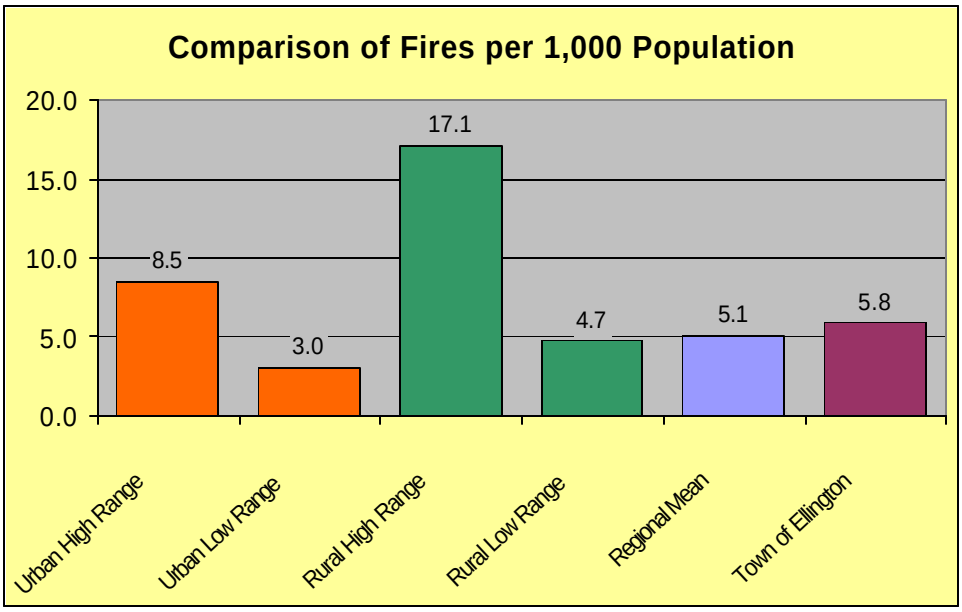
Figure 26: Comparison of Incident Rates by Population



However, it should be remembered that the statistics include many communities that provide all of their emergency medical services through their fire department. In reality, Ellington is probably well within the normal range for suburban communities providing two tiers of EMS response.

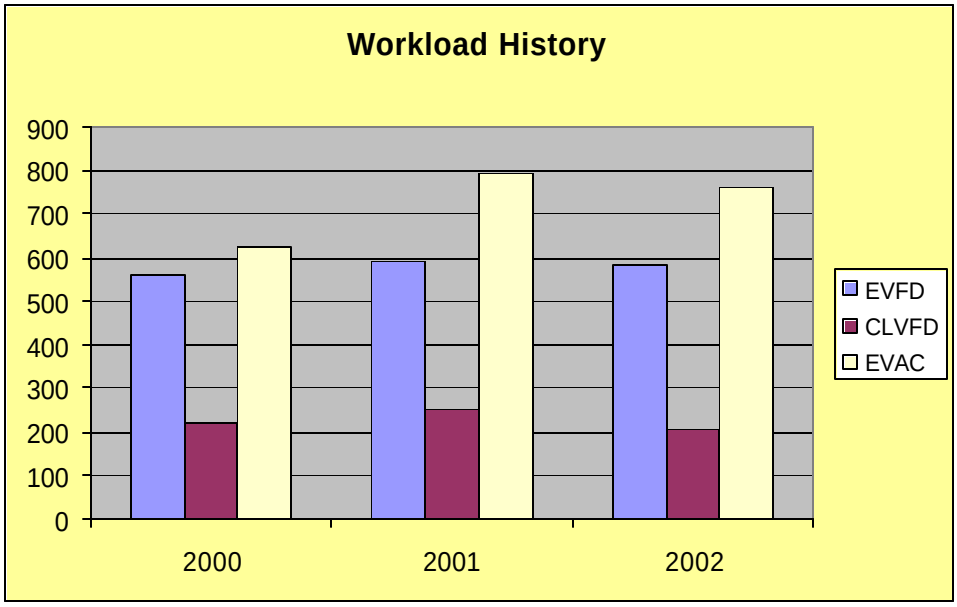
This assumption is supported by a review of the number of actual fire incidents per 1,000 population. As can be seen in figure 27, Ellington experiences the normal number of fires per 1,000 population for a community of its size.

Figure 27: Fires Per 1,000 Population



The following chart shows how response volume has changed over the last three years.

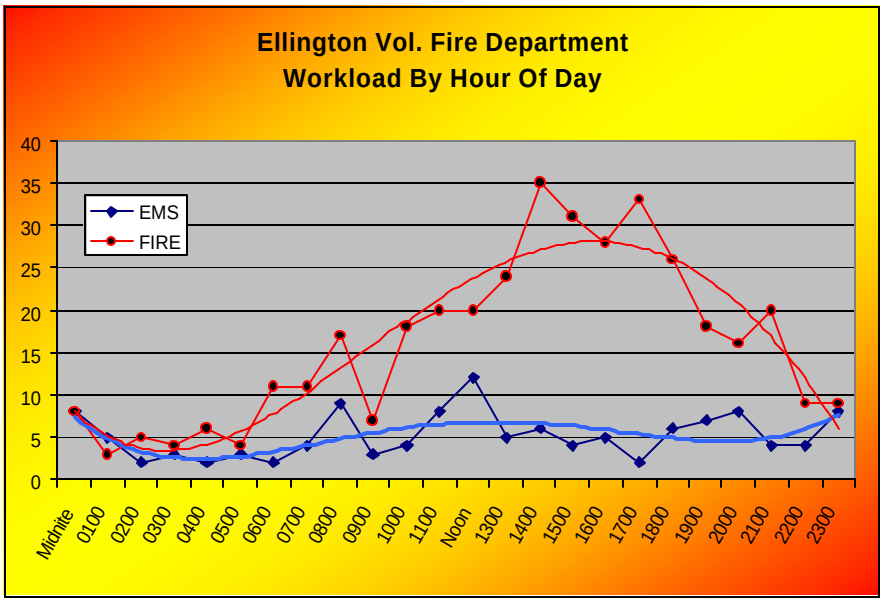
Figure 28: Workload Historical Data



A review of incidents by time of occurrence also reveals when the greatest response demand is occurring. For this analysis, we considered each agency separately in order to permit closer analysis of trends affecting a particular department.

The following charts show how activity and demand changes for the EVFD based on time of day (figure 28) and day of week (figure 29). EMS responses are plotted separately from fire and other incident responses.

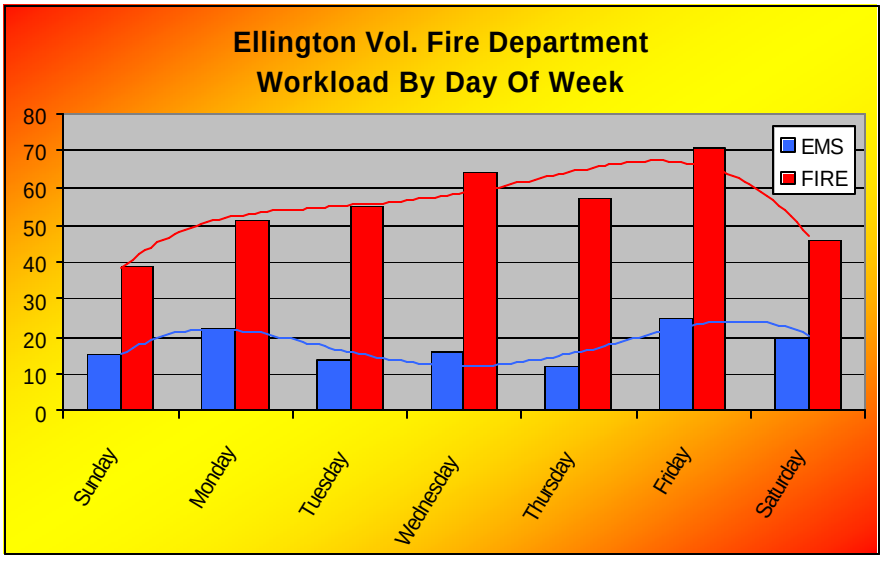
Figure 29: EVFD Workload By Time Of Day



Peak response activity occurs between the hours of 9:00am and 10:00pm. This is typical of most fire agencies' experience.

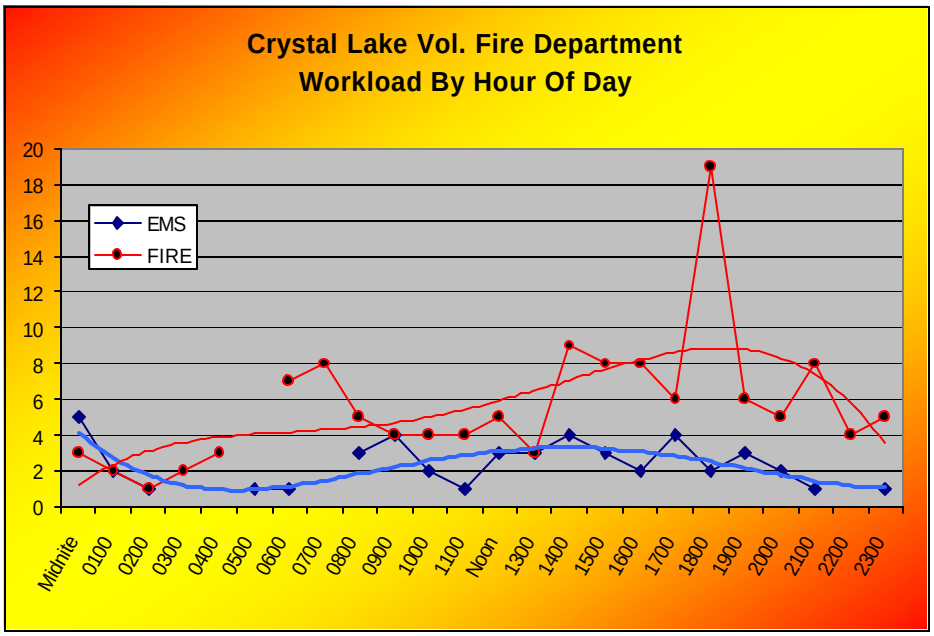
Incident volumes are relatively even throughout the days of the week, with only a slight increase toward week's end.

Figure 30: EVFD Workload By Day Of Week



The following charts show how activity and demand changes for the CLVFD based on time of day (figure 30) and day of week (figure 31).

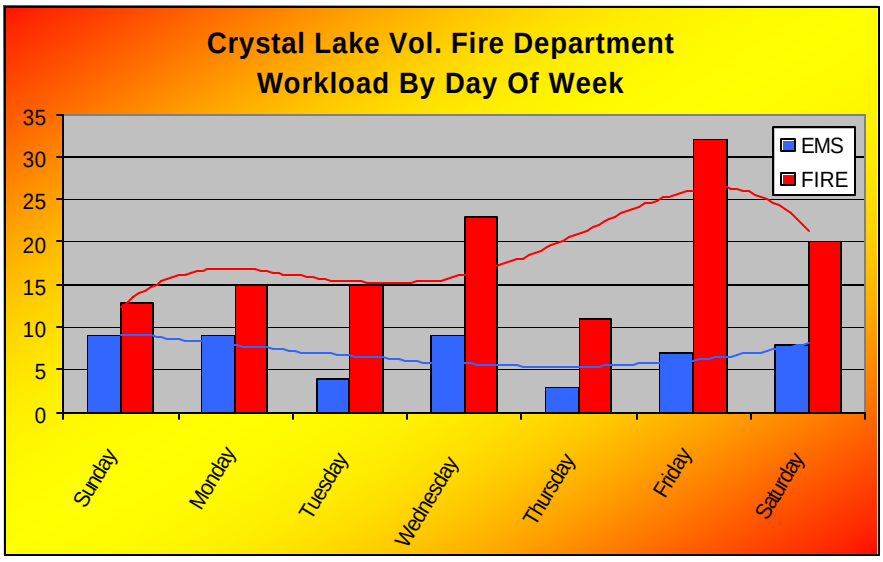
Figure 31: CLVFD Workload by Time of Day



Peak response activity for CLVFD occurs between the hours of noon and 10:00pm. This is not typical of most fire agencies' experience and perhaps reflects the nature of the lake community's activity periods.

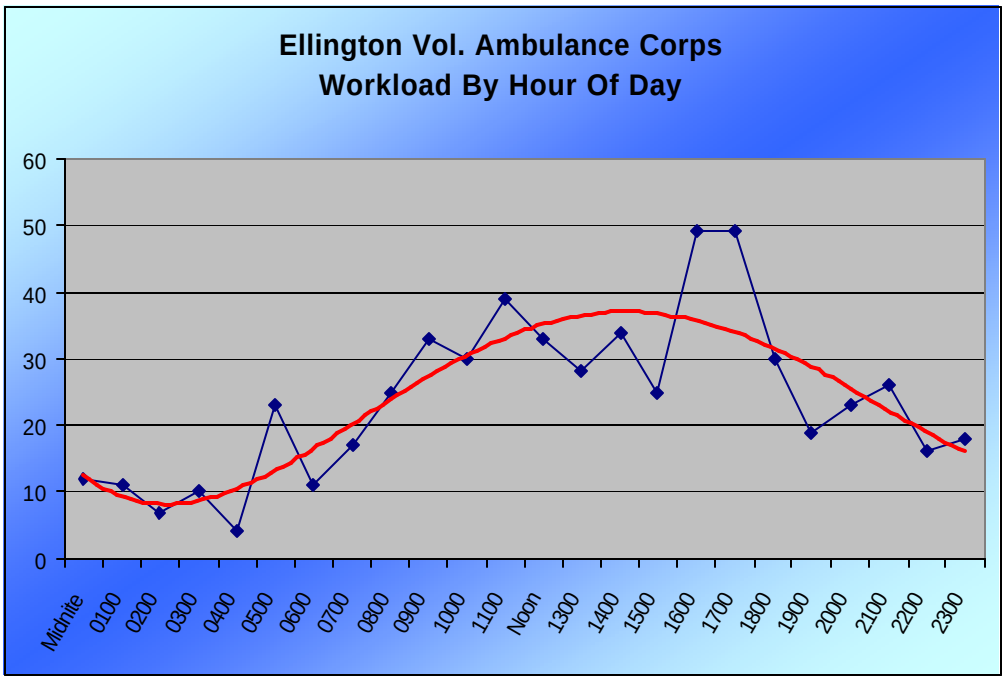
Incident volumes are relatively even throughout the early days of the week, with a much more notable increase toward week's end.

Figure 32: CLVFD Workload By Day Of Week



The following chart shows how activity and demand changes for the EVAC based on time of day (figure 32). Day of week analysis was unavailable.

Figure 33: EVAC Workload by Time of Day



Peak response activity for EVAC occurs between the hours of 8:00am and 10:00pm. This is reasonably typical of a suburban emergency medical service.

Recorded Response Time Performance

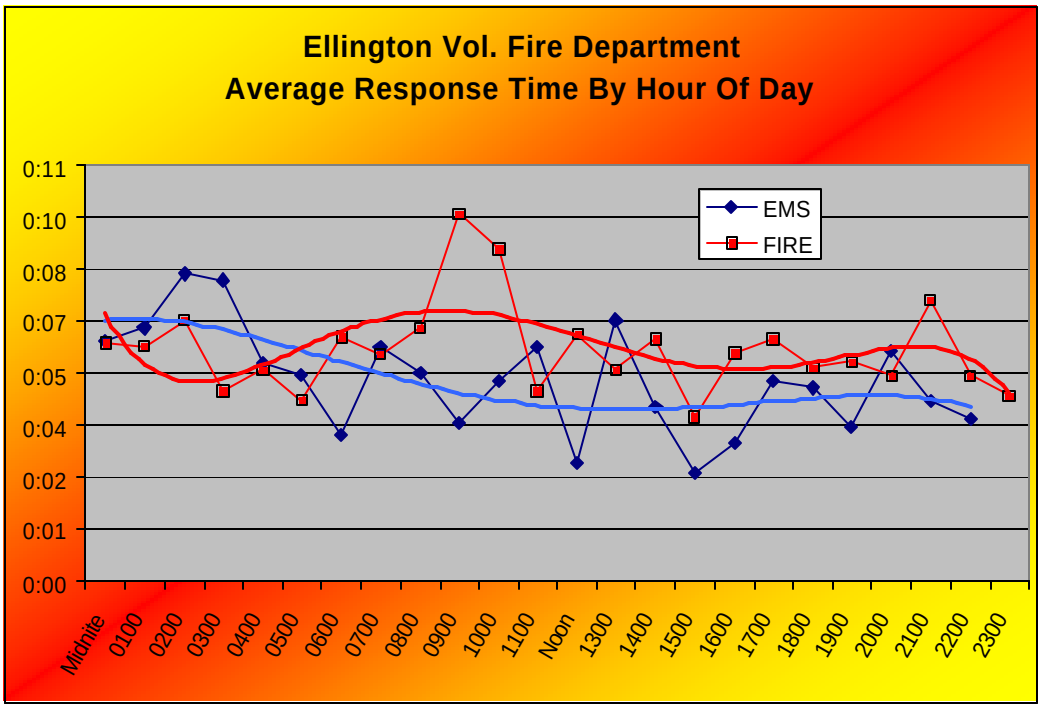
The Town of Ellington has not formally established response time objectives for its emergency services, so there will be no target against which to compare current performance. A common response time objective for suburban departments providing fire and emergency medical response is to arrive within six minutes or less to 90% of the calls within the jurisdiction. The critical importance of this time objective is explained in the earlier sections of this chapter.

EVFD

The *average* response time for those incidents occurring within the primary response area of EVFD during the calendar year 2002 ranged from a high average of 10 minutes for fire calls between the hours of 9:00am and 10:00am, to a low average of 3 minutes for EMS incidents between the hours of 3:00pm and 5:00pm. The overall average response time of the department within its primary

jurisdiction was five minutes. The chart below (figure 34) shows average response time performance by hour of day. Average response time is a useful measure to determine how well "geographic based" coverage is achieved.

Figure 34: Average Response Time By Hour Of Day



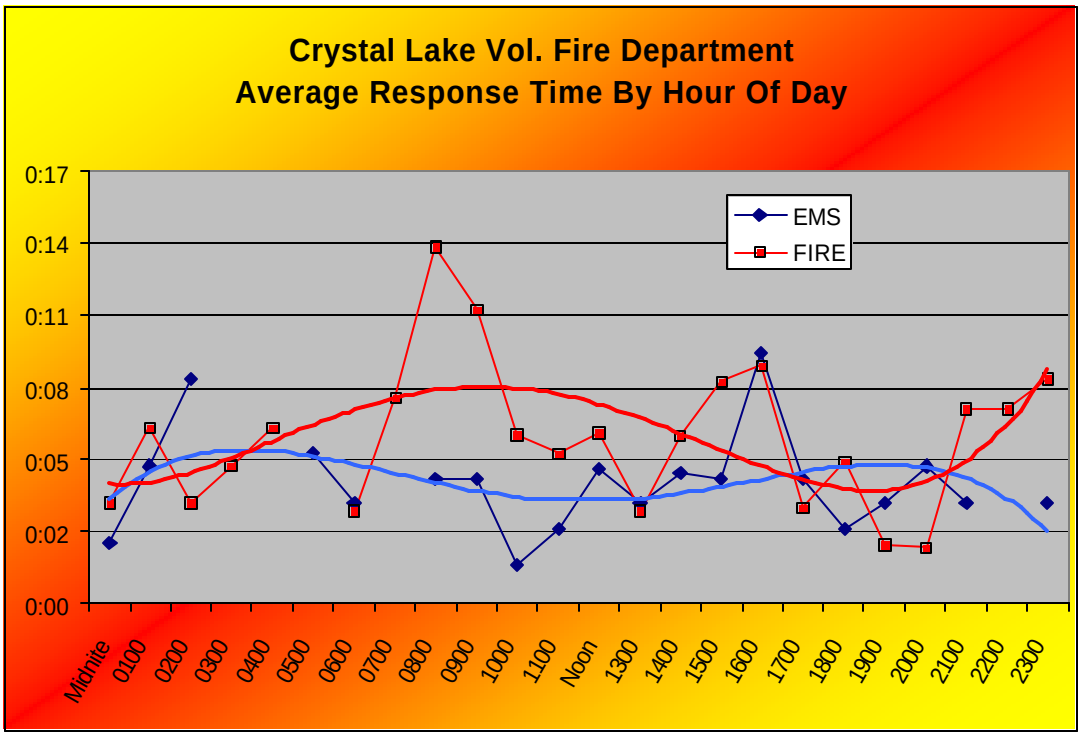
Of more significance is how well the emergency response demand is being serviced. One useful way to determine how well "demand-based" coverage is achieved is by determining maximum response time to a majority of incidents, in this case 90%.

The *90th percentile* response time for fire incidents occurring within the primary response area of EVFD during 2002 was **11 minutes**. The *90th percentile* response time for EMS incidents to which EVFD responded during 2002 was **10 minutes**.

CLVFD

The *average* response time for those incidents occurring within the primary response area of CLVFD during the calendar year 2002 ranged from a high average of 14 minutes for fire calls between the hours of 8:00 a.m. and 9:00 a.m., to a low average of two minutes for EMS incidents between the hours of Midnight and 1:00 a.m. The overall average response time of the department within its primary jurisdiction was five minutes. The chart below (figure 34) shows average response time performance by hour of day. Average response time is a useful measure to determine how well "geographic based" coverage is achieved.

Figure 35: Average Response Time by Hour of Day



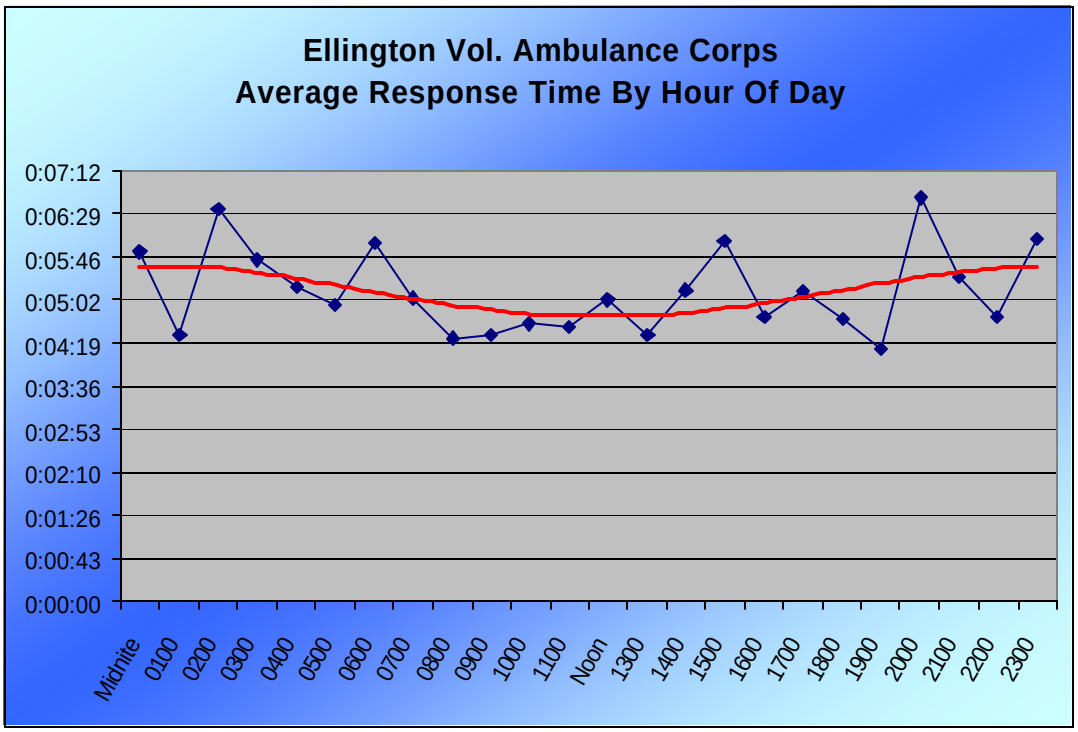
Of more significance is how well the emergency response demand is being serviced. One useful way to determine how well "demand-based" coverage is achieved is by determining maximum response time to a majority of incidents, in this case 90%.

The *90th percentile* response time for fire incidents occurring within the primary response area of CLVFD during 2002 was **15 minutes**. The *90th percentile* response time for EMS incidents to which CLVFD responded during 2002 was **7 minutes**.

EVAC

The *average* response time for those incidents occurring within the primary response area of EVAC during the calendar year 2002 ranged from a high average of just under 7 minutes for calls between the hours of 8:00pm and 9:00pm, to a low average of just over 4 minutes between the hours of 7:00pm and 8:00pm. The overall average response time of the department within its primary jurisdiction was 5 minutes. The chart below (figure 35) shows average response time performance by hour of day. Average response time is a useful measure to determine how well "geographic based" coverage is achieved.

Figure 36: Average Response Time By Hour Of Day



Of more significance is how well the emergency response demand is being serviced. One useful way to determine how well "demand-based" coverage is achieved is by determining maximum response time to a majority of incidents, in this case 90%.

The *90th percentile* response time for EMS incidents to which EVAC responded during 2002 was **8 minutes**.

Were the Town of Ellington to establish a response time objective of six minutes or less to 90% of its calls, the data indicates that significant improvement would need to be made in reducing overall response times. While additional locations for resource deployment could help, the greatest initial impact would likely be seen by staffing the existing facilities, at least during periods of peak demand. This staffing could take the form of paid part-time and career employees or could be a creative staffing program designed to place volunteers on-duty at the station during certain shifts.

Recommendation

- Regularly measure performance against established response time objectives.
- As recommended in this report, evaluate station locations and consider geographic and demand-based improvements to decrease response times.
- Consider voluntary or mandatory staffing requirements for volunteers during peak-demand periods.

Objective Nine – Training Program

Providing quality and safe fire and emergency services requires a well-trained response force. Training and education of department personnel are critical functions for the Crystal Lake and Ellington Volunteer Fire Departments, and the Ellington Volunteer Ambulance Corp. Without a quality, comprehensive training program, emergency outcomes are compromised and department personnel are at risk.

General Training Competencies

In order to ensure quality training is provided, it should be based on established standards of good practice. There are a variety of sources for training standards. The Crystal Lake and Ellington Volunteer Fire Departments, and the Ellington Volunteer Ambulance Corp utilize the National Fire Protection Association (NFPA) and International Fire Service Training Association (IFSTA), the National Fire Academy, the State of Connecticut's OEMS, OSHA, Commission of Fire Prevention and Control, and the Connecticut Medical Training Academy as its main sources of standards and materials, all of which are considered industry standards.

The following chart identifies current number of members holding training certifications by department and type of certification:

Figure 37: Certification Levels of Members by Department

	FF I	FF II	FSI	FO I	FO II	MRT	EMT	AED	EMS I	HM AW	HM OP	HM Tech	Pump Oper	SO
Crystal Lake VFD	9	3	-	-	-	7	5	11	-	11	7	-		
Ellington VFD	16	19	13	12	4	11	15	21	3	13	28	5	5	6
Ellington Ambulance Corp	-	-	-	-	-	-	?	?	?	-	-	-		

Training Facilities

Crystal Lake and Ellington Volunteer Fire Departments, and Ellington Volunteer Ambulance Corp have few training facilities dedicated to support on-going training and education of department personnel. Each station has an all-purpose meeting room that may be converted to a didactic classroom setting. Basic audio/visual aids and props are available. The Ellington department has included training facilities in their proposed new station.

There is no local training tower available to practice ladder skills and multi-floor operations. Fire department and ambulance corp. buildings and other appropriate structures in Ellington are currently used for these evolutions. Live fire training is limited to only those times a structure intended for demolition is obtained by the departments or arranging for members to travel to the regional Windsor Locks facility or other facilities.

Providing quality props and tools to support training efforts should continue to be a priority for the Crystal Lake and Ellington Volunteer Fire Departments and the Ellington Ambulance Corp. Quality training occurs when simulations are created that closely mimic real life emergencies.

Providing access to dedicated training facilities is an ongoing challenge for the departments. Due to the remoteness of regional facilities and the need to take staffing resources out of town to participate, regularly scheduled live burn and live fire training can be difficult. An on-going coordinated effort is necessary to accomplish this goal.

Additional training facilities have been included in the Ellington Volunteer Fire Department's plans for a new station.

Recommendation

- Develop a joint plan between the fire department and ambulance cord entities to regularly attend regional live burn and real life emergency training while maintaining a response complement in the town.

Training Staff

Crystal Lake and Ellington Volunteer Fire Departments, and the Ellington Volunteer Ambulance Corp. have appointed training officers.

The Crystal Lake department, at this writing, was experiencing leadership changes and had just selected a new training officer (Captain). This officer was very close to completing instructor certification at that time and would be the only certified instructor in the department.

The Ellington Department has a Deputy Chief assigned as the department training officer. The department's training committee, comprised of all department officers, supports the training officer. The training committee provides coordination and direction to their training program.

The Ellington Ambulance Corp's training officer coordinates the department's on-going, in-service training program, new member orientation, and monitors member recertification needs.

From a town-wide perspective, the fire departments and ambulance corp. are poised to enter into a committee approach to a comprehensive, joint training program. This approach could foster an improved operational working relationship while making the best use of available resources. While retaining organizational autonomy they could establish a consistent, on-going training program meeting the goals, objectives and needs of the Town of Ellington jurisdiction. This represents a positive administrative, operational, and financial savings opportunity resulting in a more efficient, effective training program town-wide.

Recommendation

- Establish a town-wide fire, rescue, and emergency medical training committee to facilitate the training goals and objectives of the fire departments and ambulance corp. in the Town of Ellington. This would include improving training facilities and resources

Entry Level Training

The Connecticut Commission on Fire Prevention & Control, Connecticut Fire Academy has identified the National Fire Protection Association Standard 1001 as its entry level training standard. This standard may generally be met through the IFSTA Essentials of Firefighting Curriculum.

To be recognized as interior structural firefighters ConnOSHA mandates firefighter candidates be deemed competent by the authority having jurisdiction in the following subjects (IFSTA Essentials of Firefighting Curriculum):

- Safety and PPE
- SCBA
- Fire Streams
- Hose
- Ground Ladders
- Rescue
- Forcible Entry
- Ventilation
- Pumping Fire Apparatus
- Fire Control

Classroom contact hours –30

Practical Skills contact hours – 68

To obtain Firefighter I certification the candidate must be deemed competent in the following additional subjects:

- Sprinkler Systems
- Salvage & Overhaul
- Protecting Evidence
- Department Communications
- Fire Prevention and Public Education
- Portable Extinguishers
- Ropes & Knots
- Fire Behavior
- Building Construction
- Blood borne Pathogens
- Hazmat Awareness

Classroom contact hours – 38

Practical Skills contact hours – 16

ConnOSHA has additional requirements in the following subject areas:

- Firefighting
- Hazardous Materials Operations
- Command Leaders and Incident Commanders
- Infectious Disease Control
- Confined Space

Minimum local new members training requirements that must be obtained within the first year of membership are as follows:

Crystal Lake Volunteer Fire Department

Firefighter I [140 hours] or,

EMT [140 hours] or,

MRT [48 hours]

Ellington Volunteer Fire Department

Firefighter I [140 hours] *or* EMT [140 hours]

HazMat [40 hours]

CPR [8 hours]

Ellington Volunteer Ambulance Corp.

EMT [140 hours]

All members of both fire departments and the ambulance corp. should be trained to the Operations Level in hazmat as early as possible or during their probationary period. The Awareness level is insufficient for responding emergency services personnel.

Ongoing Skills Maintenance Training

Personnel must be continually provided with refresher training to avoid degradation of skills learned during entry-level training and to maintain certifications. In addition, training must be provided to deal with emerging risks and service demands.

Training officers are expected to provide for ongoing training. Though this expectation exists there is a disparity among the three departments as to what training should be provided and to what standard personnel should be able to perform. Further, with the exception of EVFD, little ongoing training is provided to training officers to ensure their skills and knowledge remain current.

There is a variety of guidance available on the amount of time that a firefighter/rescuer should spend training each year including the Insurance Services Office, NFPA, CMTA and others. Some of these sources suggest that 240 hours per year is the minimum needed to ensure firefighter proficiency and prevent degradation of skills. Additional hours of training are needed for specialty services such as rescue, emergency medical, leadership and incident management.

The Ellington Volunteer Fire Department has established an annual training mandate for active members. This mandate includes the following topics and hours:

- **Hazard Communications** **2 hours**
- **Blood Borne Pathogens & Tuberculosis** **3 hours**
- **Lock-out & Tag-out** **1 hour**
- **Incident Command** **1 hour**
- **Hazardous Materials** **4 hours**
- **Self-Contained Breathing Apparatus** **4 hours**
- **Live Fire Training** **8 hours**
- **Defibrillator** **8 hours**

Crystal Lake Volunteer Fire Department and Ellington Ambulance Corp. have not set annual training goals and objectives.

The Ambulance Corp. schedules training on the second Monday of each month after their membership meeting. No record of the Ambulance Corp. training activities was provided.

The Crystal Lake Volunteer Fire Department usually schedules training twice per month on a Monday and a Sunday. In addition to hours dedicated to achieving certification or recertification, 1899 hours were completed by 21 members, an average of 90.43 hours per member. The topics covered included:

Driver Training	Aerial Tactics
Child Abuse	SCBA
Dive Training	Ventilation & Ladders
Pumps	Thermal Imaging Camera
Airplane Safety	Boat Certification
Fire Prevention	Medical Training
CPR/Defibrillation	Airbag Training
Incident Command	DEP Training
Bloodborne	Live Burn
Pathogens	Hydraulic Tools
Life Star	Extrication
Search & Rescue	Cold Water Rescue
Confined Space	WMD

The Ellington Volunteer Fire Department schedules training twice per month on the first and fourth Thursdays. 2,801.7 hours were completed by 49 members. An average of 57.18 hours per member. Additionally, members completed 1,048 hours of certification/recertification training. Total training hours for 6/1/2002 through 6/1/2003 were 3,849.7 for 49 members.
Monthly scheduled training included the following topics:

Handline Operations	Driver Training
Forcible Entry and RIT	Alternate Fuel Vehicles
Water Rescue	SCBA
Tanker Shuttle	Medical Emergencies
DAWGS	Extrication
HazMat	Ladder Operations
Pre-Plan	Ropes
Practice Exercises	LDH/Dry Hydrants
OSHA #1 & #2	Officer Training
Annual Review	EMS/Rehab

Obviously the number of hours of training each member receives falls short of national standards, ISO, and other recommendations. Each department should monitor training requirements to ensure members maintain proficiency and do not experience a degradation of necessary skills.

Ongoing training should follow an identified plan based on demonstrated training needs. Such a plan is best developed as a result of periodic evaluation of the current skill levels of employees (competency based training).

Under a competency-based system, an evaluation of skill performance is conducted at scheduled intervals to determine if the person being evaluated can perform the task in accordance with pre-determined standards. Those skills that are performed well require no additional training. Those skills not performed well are practiced until the standard is met.

This approach maximizes the time used for training. Further it ensures that personnel are performing at an established level. Specialty skills can be evaluated in the same manner with further training provided as needed.

Ideally the competency based training approach is used on an ongoing basis. For example, each quarter different skills are evaluated on an individual-by-individual and department by department basis.

To institute a competency based approach to training, all of the needed skills must be documented to describe the standard of performance expected. This would include all skills such as hose handling, apparatus operation, emergency medical procedures, use of equipment and tools, forcible entry, ventilation, tactics and strategy and others.

To operate an effective ongoing training program, even under the competency based approach, sufficient training personnel must be available to conduct skill evaluations and to assist with performance improvement training.

Recommendation

- Adopt a competency-based approach to ongoing training. Develop standards for the various skills required of members and evaluate these skills on a periodic basis. Focus in-service training on improving skills not well performed and learning new skills and knowledge to deal with emerging risks and service demands.
- Each department should monitor training requirements to ensure members maintain proficiency and do not experience a degradation of necessary skills.
- All members of both fire departments and the ambulance corp. should be trained to the Operations Level in hazmat as early as possible or during their probationary period. The Awareness level is insufficient for responding emergency services personnel.

Career Development Training

National standards recommend that personnel demonstrate the skills and knowledge required prior to be promoted to a more responsible position within the organization. Pre-promotional training is often provided to ensure candidates for promotion meet the minimum educational requirements for the position. Then the recruitment process is used to select the most qualified individual based on a demonstration of proficiency. Ellington Volunteer Fire Department has accomplished a milestone with all of their leadership personnel attaining the State of Connecticut Fire Officer I certification.

Recommendation

- Require pre-promotion training, based on accepted standards, before promoting members to more responsible positions

Training Program Planning

Like any other activity training and education of personnel should be conducted under a comprehensive plan. This plan should include a clear definition of the goals and objectives of the training program, and a schedule of training activities to achieve them.

The Ellington Volunteer Fire Department has accomplished a comprehensive training plan. Through their Training Committee chaired by the department's training officer clear goals and objectives have been set including a schedule of training activities to achieve them.

The Crystal Lake Volunteer Fire Department and the Ellington Volunteer Ambulance Corp. need to develop and implement a comprehensive training plan. This is clearly an area where the three entities could join resources to accomplish a Town-wide comprehensive training program that is a benefit to the organizations, its members, and the Town of Ellington.

Ideally, a comprehensive training plan includes:

- Identification of performance standards for all personnel
- Provisions for periodic review of individual and company level performance
- Scheduled training to prevent skills degradation
- Scheduled skills improvement training
- Comprehensive training objectives for each training session presented
- Process for evaluating the amount of learning that occurred

Recommendation

- Develop a comprehensive town-wide, joint training plan and schedule. The plan should include goals and objectives, schedule of events and evaluation methods to ensure quality training is delivered. This is clearly an area where the three entities could join resources to accomplish a Town-wide comprehensive training program that is a benefit to the organizations, its members, and the Town of Ellington.

Record and Reports

The Crystal Lake and Ellington Volunteer Fire Departments and the Ellington Volunteer Ambulance Corp. maintain their training records in three distinctly separate methods. Ellington VFD records are automated while Crystal Lake VFD and Ellington VAC are manually recorded.

Ellington VFD is currently using the "Red Alert" system and has identified shortcomings with the system as it relates to the department's training needs. This is prime opportunity, as part of a joint training comprehensive plan, to upgrade or replace this data system with a system compatible with the three organizations. There are systems on the market that can accomplish most, if not all, of an emergency services needs [training, incident reporting, fire prevention, station log, etc]. This would represent a significant administrative, financial, and data analysis resource for the three departments.

Recommendation

- Explore the acquisition or upgrading of a training data system, as part of a joint comprehensive training plan, to efficiently and effectively document the training activity of the Ellington and Crystal Lake VFDs and the Ellington VAC. This could be accomplished in conjunction with the recommendations for a consolidated records management system found elsewhere in this report.

Objective Ten – Fire Prevention Program

An aggressive risk management program, through active fire prevention efforts, is a fire department's best opportunity to minimize the losses and human trauma associated with fire. The International Association of Fire Chiefs has defined proactive fire services as:

> *"… embracing new, proven, technology and built-in protection, like automatic fire sprinkler and early detection systems, combined with an aggressive code enforcement and strong public education programs."*

A fire department should actively promote fire resistive construction, built-in early warning and fire suppression systems, and an educated public trained to minimize their risk to fire and respond effectively when faced with an emergency.

Code Enforcement

The Town of Ellington Department of Town Fire Marshal is comprised of three part time positions; Fire Marshal at 28 hours per week supported by the Deputy Fire Marshal and Inspector as the budget allows. Currently, the Deputy Fire Marshal and Inspector funding has limited to accomplishing their annual, state mandated recertification and training.

State statutes mandate a building occupancy inspection program for the Town. Section 29-305 of the Connecticut General Statutes mandates an annual inspection of structures and occupancies to which the State Fire Code is applicable, excluding only one and two-family dwellings wherein an inspection can occur only as a result of a complaint or request. As a result, the current inspection program for Ellington involves more than 2,000 inspectable properties.

The Fire Marshal is responsible for the investigation of all fires, explosions and hazardous material incidents occurring the Town. All building construction plans, other than single and two-family homes, must be approved by the Fire Marshal before building permits may be issued; all hazardous materials vehicles, all explosive operations and open burning sites must permitted; and a central registry must be maintained for all hazardous materials utilized in manufacturing.

Additionally, the emergency management (civil preparedness) office and the federally mandated superfund amendments reauthorization act emergency planning committee have been administered for the Town through the Department of Town Fire Marshal.

Duties imposed by statute on the local fire marshal are as follows:

- Investigate the cause, origin, and circumstances of all fires within their jurisdiction, and shall, within ten days report the same to the State Fire Marshal in the designated format.
- Issue Permits for the use, transportation and storage of explosives in compliance with state explosive regulations.
- Notify the Labor Commissioner of fire hazards found in manufacturing establishments.
- Enforce the Space Heater Statute.
- Inspect all flammable and combustible liquids storage tank installations for compliance with regulations.
- Inspect, at least once a year, all dry cleaning and dry dyeing establishments for compliance with the appropriate code.
- Inspect and enforce the regulations concerning storage, use and transportation of liquefied petroleum gas and liquefied natural gas.
- Annually inspect all storage plants and equipment and vehicles at bulk storage plants for the storage and transportation of hazardous materials.
- Administer and enforce manufacturing employer hazardous materials notification law.
- Conduct site inspection of all fireworks and special effects displays for compliance with applicable State legislation.
- Inspect all outdoor amusements attesting to the event being reasonable safe from the effects of panic, fire or smoke.
- Conduct review of plans and specifications for various occupancies being proposed within the town for compliance with the Connecticut Fire Safety Code.
- Attend schools and seminars to keep abreast of the codes, regulations, and new technology.
- Maintain State Fire Marshal certification
- Obtain 90 hours of continuing education over three years to maintain certification.
- Provide safety tips and give advice to the general public
- Sign applications for open burning permits.

New Construction Review

The Town Fire Marshal reviews new construction plans for compliance with the Connecticut Fire Safety Code. This review process is conducted through the Town's Plan Review and Coordination Panel. This panel is comprised of the following town representatives:

- Fire Marshal
- Building Official

- Public Works Director
- Health Department Official
- Planner
- Engineer
- Water Pollution Control Authority Official
- Tax Assessor

These Town Officials "sign off" and approve new construction plans before the Building Official issues a building permit. This process, however, is not formalized and is manually documented and tracked among the Town representatives. Building and occupancy permits may be issued by the Building Official without review and/or approval of the Fire Marshal. There is no formal development authorization review process.

Recommendation

- Develop a formal "Development Authorization and Review Process" for the Town of Ellington to include: tracking of plans and permits, removal of duplicated effort among Town agencies, and assurance that appropriate agencies review/approve plans prior to the issuance of building and occupancy permits.

Fire Safety Inspections

Property inspections, to find and eliminate potential fire hazards, are an important part of the overall fire protection system. As indicated earlier in this report, Section 29-305 of the Connecticut General Statutes mandates an annual inspection of structures and occupancies to which the State Fire Code is applicable, excluding only one and two-family dwellings wherein an inspection can occur only as a result of a complaint or request. The Town of Ellington reports having more than 2,000 properties requiring this annual inspection. Unfortunately, the statutes themselves may ultimately doom most inspection programs to statistical failure.

Because the statute includes all but one and two-family dwellings in the mandatory program, rental dwellings in multi-tenant apartment buildings are included. However, case law typically has placed strict limits on non-consensual entry of government officials into residential dwellings tending, instead, to support an individual's expectation to privacy against government intrusion in dwellings. Even the statute itself prohibits these dwelling inspections outside of the hours of 9am to 5pm, the time most individuals are at work. The statute, however, does not go on to provide methods for non-consensual entry of a fire inspector during those hours. As a result, it can be expected that a significant portion of residential dwelling occupancies will go uninspected without complicated and lengthy processes to secure legal rights for non-consensual entry.

The statute directing local fire marshals to conduct annual inspections leaves no room for the exercise of discretion. The failure to conduct mandated inspections may be a basis for a claim against the authority having jurisdiction. This, of course, presents somewhat of a no-win situation for local governments- essentially a non-attainable mandate. The Town Attorney should review the statute, along with the Town's efforts at compliance, and provide direction on options for achieving both consensual and non-consensual entry into covered occupancies such as multi-tenant residential dwellings.

The following chart indicates the Department of Town Fire Marshal inspection, permit, and citation activity for three fiscal years:

Figure 38: Fire Prevention Workload and Activity Report

	1999-2000	2000-2001	2001-2002
Inspections			
Commercial	9	4	8
Public Assembly	13	15	17
Educational	16	15	11
Multi-fam Residential	16	31	102
Hazardous Materials	19	16	17
Other	2	5	34
Total	**75**	**86**	**189**
Permits & Citations			
Licenses/Permits	34	35	37
OpenBurning Permits	78	53	59
Citations Issued	113	176	270
Total	**225**	**264**	**366**

Source: Department of Town Fire Marshal Annual Report 2001-2002

Review and analysis of the above activity chart reveals a significant disparity in the comparison of the number of inspectable properties to the number of inspections completed annually. The Department of Fire Marshal reports having more than 2,000 inspectable properties, but completed only 189 occupancy inspections in FY 2001-2002, just under 10%. This total amounts to about 3-4 inspections per week on an annual basis.

Though the Connecticut State Fire Safety Code requires that most properties be inspected annually, it has already been demonstrated that 100% compliance is extremely unlikely. Another method of determining inspection frequency is offered and can be found in various NFPA and IFSTA documents and publications. In these models, the recommended frequency of inspection varies by the type of business and degree of hazard. The table below describes the various hazard classes and the nationally recommended frequency for fire safety inspections.

Figure 39: Recommended Inspection Frequency By Occupancy Type

Hazard Classification	Example Facilities	Recommended Inspection Frequency
Low	Apartment common areas, small stores and offices, medical offices, storage of other than flammable or hazardous materials.	**Annual**
Moderate	Gas stations, large (>12,000 square feet) stores and offices, restaurants, schools, hospitals, manufacturing (moderate hazardous materials use), industrial (moderate hazardous materials use), auto repair shops, storage of large quantities of combustible or flammable material.	**Semi-annual**
High	Nursing homes, large quantity users of hazardous materials, industrial facilities with high process hazards, bulk flammable liquid storage facilities, a facility classified as an "extremely hazardous substance" facility by federal regulations (SARA Title III)	**Quarterly**

Given the nearly unachievable nature of the state mandated inspection program, consideration should be given to classifying all occupancies using the hazard classification shown above. In this manner, the percentage of mandate compliance within each hazard class could be calculated separately, thus providing evidence that the town was prioritizing its compliance efforts to those occupancies with highest risk. If such a system were adopted, the Town should set an achievement goal of 100% for medium and high risk occupancies.

The fire prevention division needs to:

1. Clearly identify the number of properties that should be inspected, classified by level of risk as indicated in the above figure
2. Prioritize the frequency these properties should be inspected by level of risk when all properties cannot be inspected annually and establish performance objectives based on this prioritization
3. Identify the resources needed to conduct the inspections, re-inspections and other related activities to achieve the desired performance objectives
4. Develop a comprehensive records management system so that the results of inspections can be recorded, re-inspections tracked and next inspection dates identified to the responsible inspector
5. Ensure personnel are properly trained to perform the inspections they are assigned
6. Develop a results-oriented reporting system that contrasts the fire inspection effort against the county's fire occurrence and loss experience.

Fire station personnel can be utilized to provide fire inspection service within their station areas. They must receive comprehensive training to do this work to ensure best service and minimize the risk associated with improper inspections. However, this should not be at the expense of their primary function of emergency responders.

Recommendation

- Given the strong potential that full compliance with the state mandated inspection program is unachievable, establish alternate performance objectives for the inspection program based on actual risk and available resources.
- Review the state inspection mandate with the Town Attorney to ensure that adequate provisions are in place to achieve compliance related to non-consensual entry in private dwellings.
- Establish prioritization for compliance with inspection mandates on occupancies with highest risks as described in the alternate inspection frequency model provided.
- Ensure adequate staffing of the function with properly trained personnel. Maintain a comprehensive, results-oriented, record of program activities.

Public Fire Safety Education

The public fire safety education is conducted by three agencies within the Town of Ellington; The Department of Town Fire Marshal, the Ellington Volunteer Fire Department, the Crystal Lake Volunteer Fire Department.

Each year the Department of Town Fire Marshal conducts a popular Fire Prevention Poster contest among all fourth and fifth grade students in the Town. First, second, and third place winners are selected and monetary prizes are presented at the Town Selectman's meeting. The first place winner gets a $50.00 check, second $30.00, and third $20.00. Local first place winners may then compete at the county level and those winners may move to the state level.

The Crystal Lake Volunteer Fire Department is currently undergoing leadership changes and does not have an officer assigned to public fire safety education. The Department does, however, have an annual Fire Prevention Week program for kindergarten through 5th grade students at the Crystal Lake Elementary School and their two daycare centers. This program includes videotapes, handouts, pens, and hats, etc., with educational fire safety presentations. Students are familiarized with firefighter protective clothing and fire/rescue apparatus. Crystal Lake Volunteer Fire Department also sponsors a Fire Prevention Poster contest.

The Ellington Volunteer Fire Department has a formal public fire safety education program. A Lieutenant and a Firefighter, reporting directly to the Fire Chief, coordinate the Public Education Committee. Regular meetings are conducted and minutes are recorded and disseminated. Ellington Volunteer Fire Department provides programs throughout the year that are tailored to the audience at hand. These programs include apparatus and firefighter demonstrations, puppet shows, elementary school presentations and shows, scout programs, and pre-school involvement to mention a few.

The three entities tend to operate independently of each other in their life and fire safety education efforts. Beginning with a regular analysis of emergency incidents occurring in the Town of Ellington and other observations, the Department of Town Fire Marshal, the Ellington Volunteer Fire Department, and the Crystal Lake Volunteer Fire Department should enter into a combined, joint effort to accomplish a comprehensive life and fire safety education program town-wide. This could be accomplished through a committee comprised of the representatives from the three departments and result in a much more efficient use of existing resources.

There should be some way to measure results of the effort. This would include expanding information tracked on each emergency incident to record whether human behavior was a contributing factor to the emergency. Also, whether citizens who were present took appropriate action when faced with the emergency.

Recommendation

- Expand the scope and audience for the delivery of public safety education.
- Establish a public life and fire safety committee comprised of the Crystal Lake and Ellington Volunteer Fire Departments and the Department of Town Fire Marshal
- Consider using community volunteers to deliver public safety education programs.
- Add data fields to the incident record system to capture information that will allow an evaluation of public safety education efforts.

Incident Information Analysis

The primary purpose for maintaining a record of emergency responses is to evaluate the effectiveness of fire department effort. This effort includes deployment strategies, personnel training, and particularly the effectiveness of fire prevention and public safety education programs.

The Crystal Lake and Ellington Volunteer Fire Departments and the Department of Town Fire Marshal are currently completing fire/rescue incident reports. However, CLVFD's reports are not automated or are not being used to provide feedback on the effectiveness of departmental programs. EVFD was able to produce a variety of charts, graphs, and tables for this study identifying useful statistical information readily available for analysis.

The three entities should work together to use the incident records to determine what types of fires are occurring most frequently, the types of properties most often involved in fire, causes of ignition, and to develop targeted fire prevention efforts, deployment strategies, training programs, and evaluate their effectiveness.

As mentioned earlier in this report, interviews indicated that the Department of Town Fire Marshal is submitting full NFIRS (National Fire Incident Reporting System) incident reports to the State Fire Marshal only for incidents in which a fire with documented property loss occurred. This reporting methodology is not in compliance with the NFIRS 5.0 reporting standards which require a basic NFIRS incident record for all incidents to which the fire department responds, regardless of documented loss or even incident type. This issue is discussed in further detail in the Management Components section of this report

Recommendation

- The Department of Town Fire Marshal, Ellington Volunteer Fire Department, and the Crystal Lake Volunteer Fire Department should jointly make use of emergency incident records to evaluate program effectiveness and develop strategies targeted at frequently occurring emergencies.

Fire Investigation

The investigation of fires, explosions, and related emergencies is an integral part of providing life and fire safety to a community.

The "fire problem" in a community is addressed by a "cycle" of resources provided by the authority having jurisdiction. These resources include **public education** so the citizen is aware of hazards, how to prevent them, and what to do should they occur; **engineering/code enforcement** so fire and life safety is an inherent part of the community infrastructure and where there is a violation compliance is achieved; **fire suppression** so that when there is a failure in the education, engineering/code

enforcement part of the cycle the emergency can be resolved; and **fire investigation** where the incident is documented, the cause determined accidental or intentional and steps taken so it will not happen again.

The results of fire investigations suggest public education needs and results, the need for code modifications and changes, fire department training, resources and deployment, and identification of the community's "fire problem."

The Town of Ellington has not completed the "cycle" in that the appropriate entities do not routinely review and analyze fire incident report data for the purposes outlined above.
The Town of Ellington fire investigation responsibility resides with the Town Fire Marshal. Standard procedures have been developed and implemented so that fire officers appropriately call out the Town Fire Marshal to make fire origin and cause determinations. This is especially true for those incidents of a suspicious or intentional nature.

Once the Town Fire Marshal determines a fire is of suspicious or intentional nature, the Connecticut State Police is notified to conduct a criminal investigation. Personnel from the Resident Trooper's Office usually accomplish this task.

The Town Fire Marshal has been authorized by the Assistant State's Attorney to use appropriate discretion regarding the referral of juveniles found to be involved in the setting of unfriendly fires to the Superior Court.

Fire Investigation activity for the Department of Town Fire Marshal is provided the following chart:

Figure 40: Fire Investigation Activity

	1999-2000	2000-2001	2001-2002
Investigations			
Criminal	25	17	13
Non-Criminal	34	50	42
Suspicious	0	0	0
Undetermined	1	1	1
Total	**60**	**68**	**56**
Casualties			
Fatal	0	1	0
Non-Fatal	0	0	1
Total	**0**	**1**	**1**
Number of Fires			
Building Fires	13	17	24
Vehicle Fires	8	13	8
Other Fires	25	17	17
Total	**46**	**47**	**49**
HazMat Incidents	8	8	7
Fire Losses X $1000			
Criminal	50.1	6.1	2.0
Non-Criminal	123.5	288.0	198.3
Suspicious	0	0	0
Total	**201.6**	**294.1**	**200.3**
Total Prop. Value	1339.5	1655.0	3855.5

Source: Department of Town Fire Marshal Annual Report 2001-2002

Office of Emergency Management

The Office of Emergency Management is responsible to administer the SARA Title III and Local Emergency Planning Committee (LEPC) requirements for the Town of Ellington. This responsibility has been accomplished through the Department of Town Fire Marshal although a transition is in process. The Director works four hours weekly and is on-call on a 24/7 basis.

A major assignment for this office is accomplishing the update of the Town of Ellington Emergency Plan into the current FEMA format and conducting required LEPC exercises and drills. Other activities include coordinating the small pox clinic, establishing additional emergency shelters, storm checks and other emergency management related tasks.

Conducting an exercise under the LEPC plan and updating the Town of Ellington's Emergency Plan are scheduled for mid 2003.

Recommendations

- Conduct an annual exercise under the Town of Ellington LEPC plan.
- Update the Town of Ellington Emergency Plan to the current FEMA format.

SUMMARY OF RECOMMENDATIONS

APPENDIX A - SURVEY MATRIX

The following tables include all sections of the emergency services ***agency evaluation survey matrix*** used by ESCi staff in data collection.

OBJECTIVE ONE - Organization Overview	***Ellington VFD***	***Crystal Lake VFD***	***Ellington Ambulance***
AUTHORITY			
Governing body's authority to provide service clearly defined?	Constitution	Constitution Fire District with Board of Commissioners	Constitution Operate under PSA providing exclusive transport jurisdiction for Ellington
Is the Chief's authority clearly defined?	In by-laws State law or code	In by-laws State law or code	In by-laws Very short description only- needs full job description and clarification
Does the governing body have clear policies for operation?	In by-laws	In by-laws Dept by-laws and Commission by-laws	In by-laws Need to review corporation operating policies in by-laws
Does the Chief receive periodic performance evaluations?	No formal evaluation	No formal evaluation	No formal evaluation
Policy-setting and roles of governing body and officers clearly defined?	Yes- in verbal understanding	Yes- in written form	Somewhat indicated in by-laws
Department Administrative Policies maintained?	Yes- combined with standard procedures	Yes- in several different documents	Yes- separate document
Process for revision?	Committee established	No formal revision system	Committee established
Legal counsel maintained?	General Counsel on contract Hired as needed Use Town Attorney for personnel and service delivery issues.	Hired as needed Use Town attorney	Use Town attorney as needed.
Financial controls in place?	Follow municipal finance rules for town money, in-house written policy for corporate money	Yes- defined in written policy	Corporate fiscal controls- somewhat limited.
How often is an external audit conducted?	Annual	Internal audit committee only.	No regular schedule

Term of auditor's contract?	Annual	None	None
Are the governing body's minutes maintained and available?	Yes- By department personnel	Board of Commissioner secretary and Dept Secretary keep minutes	Yes- By department personnel
CHAIN OF COMMAND			
Clear Unity Of Command, everyone reports to one person?	Yes- but varies within their role at any given time	Yes- but varies within their role at any given time	Yes- but varies within their role at any given time
Span of control of CEO/Chief?	3 officers 6 committee and workgroups	Very flat, administratively, all personnel report to Chief.	8 officers on the Board of Directors, plus committee chairpersons.
What is the Chief's hiring/firing authority?	Full authority over termination	Recommends termination	Recommends termination
	No authority over appointment Membership still votes on appointment based on committee recommendation	No authority over appointment	Appointment is recommeded by exec board. Body votes on final appointment and termination
ORGANIZATIONAL STRUCTURE			
Type of organizational structure?	Democratic authority	Democratic authority	Democratic authority
Clear operating divisions exist?	Program divisions tend to be identified by major committees, similar to divisions	Roles and responsibilities given to various officers, not actual divisions.	Yes
Department programs clearly defined?	Yes, w/ program goals and objectives	Programs not defined or generic	Yes, but no program goals
Formal descriptions of all jobs maintained?	Drafts in process, provided for review	Some references in by-laws, but no full job descriptions	Very rough position descriptions in by-laws only
Employment or collective bargaining agreements?	NA	NA	none
HISTORY AND FORMATION			
Historical records of department maintained?	Annual report Formal history maintained Scrapbook maintained No formal historian appointed, one or two members do this informally	Annual report Scrapbook maintained	Annual report Formal history maintained Scrapbook maintained

Individual responsible for historical records?	No formal historian	None assigned formally	Public relations officer assigned as historian
GENERAL DESCRIPTION OF AGENCY			
Agency type	Volunteer / Paid on call Private Corporation 501c3	Volunteer / Paid on call Private Corporation 501c3 Fire District	Combination Private Corporation 501c3
Area, square miles	25	9	34
Stations	One	One	One
Other facilities?	Storage garage and shed on Town property	None	None
Number of engines – front line?	Three	Three	
Number of aerial trucks – front line?	None	None	
Number of water tenders?	One		
Number of rescue/medics?	One	One	Two
Number of wildland vehicles?	One	One	
Number of command vehicles?	None	None	
Number of utility/ specialty vehicles?	Two	Two	
Number of reserve engines?	None	None	
Number of reserve ladders?	None	None	
Percentage of districts with pressurized hydrants?	40% to 50%	0% to 10%	NA
Current ISO rating?	Class Five Class Nine Split Rating	9	NA
Date of most recent survey	1991, preparing for inspection at this time	Unknown	NA
Total personnel, paid and volunteer	45 active operations personnel; 25 auxiliary and retired members	26	50
Number of administrative and support personnel?	1 part-time clerical		2 part-time clerical
Number of operational personnel, paid & scheduled	0	0	6
Number of operational personnel, volunteer or paid on call	45	26	44
Total agency budget, expense fund	$100,000 from town, $10,000 supplemented from fund-raising	$51,263	$100,100

Revenue Sources	Municipal general fund Fund-raising Grants/donations	Municipal general fund Fund-raising	Municipal general fund
Service fees utilized	None	None	EMS full transport fee
Total service fee revenue previous year	0	0	$100k to $125k per year
Miscellaneous finance information:			EMS fee revenue is placed into capital reserve fund specific to EMS
DEMOGRAPHICS			
Population, most recent estimate	11,397	1,524	12,921
Percent urban?	5-10%	0	5-10%
Percent rural or suburban?	90-95%	100%	90-95%
ALARMS			
Total of all calls previous calendar year?	563	205	760
Number of medical or rescue calls previous calendar year?	218	63	760
OBJECTIVE TWO- Management Components	***Ellington VFD***	***Crystal Lake VFD***	***Ellington Ambulance***
MISSION, VISION, STRATEGY			
Mission statement adopted?	Yes Currently being revised and adopted.	No	No
Organizational Vision established and communicated?	No	No	No
Values of department staff established?	No	No	No
Strategic or master plan?	Capital improvement and replacement plan	Five year capital improvement plan	Capital improvement and replacement plan
Agency-level goals and objectives established?	Yes, but not always formalized in written format	Annual projects only	No
Program-level goals and objectives established?	Yes Updated regularly	No	No
Performance objectives established?	No	No	No Only as established by Quality Assurance program
Code of ethics established?	No	No	No

AVAILABILITY OF POLICIES			
Administrative Policies, Rules & Regulations	Yes Regular review/update Reviewed for legal mandates Copies provided to each member Copies provided at each workplace Orientation and training provided Combined with other documents signature of understanding required	Yes Copies provided to each member Combined with other documents	Yes Regular review/update Reviewed for legal mandates Copies provided to each member Separate, stand-alone document
Standard Operating Guidelines, SOG's, SOP's	Complete SOG's in place	Complete SOG's in place	Complete SOG's in place
	Regular review/update Copies provided to each member Orientation and training provided Combined with other documents Used in training evolutions	Regular review/update Copies provided to each member Orientation and training provided Combined with other documents Used in training evolutions	Regular review/update Copies provided to each member Copies provided at each workplace Orientation and training provided Field guide provided Used in training evolutions These medical protocols are established by State OEMS
CRITICAL ISSUES IDENTIFIED			
First critical issue	Facility (central station) deficiencies that detract from mission	Volunteerism, need to recruit and maintain committed personnel	None Provided
Second critical issue	Manpower; recruiting and maintaing adequate numbers to meet the mission.	Adequate funding mechanisms	
Third critical issue	Maintaining adequate support (financial and otherwise) from municipal government	Keeping pace with changes in community, industry, and standards	

FUTURE CHALLENGES IDENTIFIED			
First challenge	Ability to deliver critical services due to declining ability of members to kee	Population growth within jurisdiction	None Provided
Second challenge	Ability to continue recruiting members with necessary commitment levels	Continuing need to maintain activity levels and recruit members	
Third challenge	Community growth and the higher expectation levels of those moving into community		
INTERNAL COMMUNICATIONS			
Regularly scheduled staff meetings?	Yes Staff meeting minutes taken & distributed	Yes	Yes Staff meeting minutes taken & distributed
Use of memos:	Formal memos used consistently	Memos rarely used	Formal memos used consistently
	Verification for critical distribution		Verification for critical distribution
Other internal communications:	Employee forums Organized & controlled bulletin board Vertical communications path clearly identified E-mail Member mail boxes Internal member-only wesbite postings	Employee newsletter Employee forums Reasonable open door policy Organized & controlled bulletin board E-mail Member mail boxes Voice mail for chief on department cell phone	Employee forums Reasonable open door policy Organized & controlled bulletin board Vertical communications path clearly identified Member mail boxes Voice mail for appropriate officers

EXTERNAL COMMUNICATIONS			
Methods for external communications:	Community newsletter Standard department e-mail address Active website Regular contact with local community organizations Local cable channel use	Community newsletter Standard department e-mail address Active website Local cable channel use	Community newsletter Website exists, but fairly stagnant. Active at community events.
Community survey or focus groups used?	No	No	No
Formal, written complaint handling process?	No	Yes	No
Citizen Advisory Committee established?	No Town has a Public Safety Commission	No District Board fulfills some of this	No
DECISION MAKING			
Preferred management methodology	Situational Participative Members still have significant democratic involvement in major decisions	Participative	Collaborative Participative
Management processes utilized	Challenging Coaching Mentoring Delegating Skills taught in Fire Officer 1 courses	Coaching Mentoring	Coaching Delegating "Buddy" training program has been very effective
Decision making process established	Democratic- vote	Democratic- vote	Democratic- vote
DOCUMENT CONTROL			
Methods of document control:	Process for public access established Hard copy files adequately protected Computer files backed up regularly	Process for public access established Hard copy files inadequately protected Computer files not backed up regularly	No process for public access established Hard copy files adequately protected Computer files backed up regularly

SECURITY			
Building security	Consistently locked Public access poorly controlled Locks rarely or never changed	Consistently locked Controlled public access Locks changed regularly Security alarm systems in place	Consistently locked Controlled public access Locks rarely or never changed
Office security	Consistently locked Controlled access Locks rarely or never changed	Consistently locked Controlled access Locks rarely or never changed	Consistently locked Controlled access Locks changed regularly
Computer security	PC's password protected Proper virus protection used None on-line at this time	Password protection not used Virus protection inadequate	PC's password protected Firewall protection not used Virus protection inadequate
Capital inventory maintained?	Yes Use serial number inventory system.	No	No
Monetary controls utilized?	No cash on premises General use credit cards utilized with account controls Purchasing controls in place, PO's used	No cash on premises No general use credit cards Purchasing controls in place, PO's used	No cash on premises No general use credit cards Purchasing controls in place, PO's used
REPORTING AND RECORDS			
Records kept on computer	Incident records Station activity records Personnel records Training records Maintenance records Financial records	Financial records	Station activity records Financial records
Type of operating platform	PC Networked to department server	PC	PC
Operating system	Windows 95, 98, ME, 2000	Windows 95, 98, ME, 2000	Windows 95, 98, ME, 2000
Periodic reports to elected officials?	Management report Operational report	None	Operational report

Annual report produced?	Yes Distributed to others	Yes Distributed to others	Yes Distributed to others
Required records maintained?	Yes	Respirator certifications not maintained Exposure records not maintained	Yes
OBJECTIVE THREE- Planning Processes	***Ellington VFD***	***Crystal Lake VFD***	***Ellington Ambulance***
ORGANIZING FOR PLANNING PROCESS			
Formally adopted planning process?	Annual budget plan only	Annual budget plan only	Annual budget plan only
Tactical planning	Pre-fire plans Specific hazard plans Training provided	Outdated pre-fire plans Forms & drawings used	NA
Operational planning	Regional IC system used Mutual aid agreements Multi-level hazmat response plan Multi-level technical rescue plan Regional disaster plan	Regional IC system used Mutual aid agreements Multi-level hazmat response plan Multi-level technical rescue plan Regional disaster plan	Regional IC system used Multi-level hazmat response plan Multi-level technical rescue plan Regional disaster plan
Master planning	CIP	CIP	CIP
CURRENT PLANNING PROCESSES			
Planning group established?	No	No	No
Current & future environmental analysis conducted?	No	No	No
Strategies formulated- goals	No	No	No
Benchmarks - performance objectives	None	None	None
Performance statements by division	None	None	None
Analyzing Current And Future Services	Not formally conducted	Not formally conducted	Not formally conducted

OBJECTIVE FOUR- Risk Management Process			
RISK MANAGEMENT			
Risk analysis conducted?	Review of claim experience. Review and analysis by insurer. Review by risk manager	Review of claim experience. Review and analysis by insurer. Review by risk manager	Review of claim experience. Review and analysis by insurer. Review by risk manager
Risk-related standards compliance efforts:	OSHA voluntary inspections	OSHA voluntary inspections	OSHA voluntary inspections
EMPLOYMENT RISKS			
Appropriate forms required by applicant?	Yes	Yes	Yes
References checked?	Yes	Yes	Yes
History checked?	Yes	Yes	Yes
Driving record checked?	Yes	Yes	Yes
Employee records on file	Training evaluations & documentation Disciplinary actions	Training evaluations & documentation Disciplinary actions	Training evaluations & documentation Disciplinary actions
EMPLOYEE TERMINATION RISKS			
Formal documentation required?	Yes	Yes	Yes
Terminations reviewed with legal counsel?	Yes	Yes	Yes
INJURY LOSS PREVENTION			
Personal protection equipment provided:	Yes-full	Yes-full	Yes-full
Annual safety training conducted?	Basic fire training, NFPA, IFSTA Routine station safety Infection control Driver training OSHA hazmat as required	Basic fire training, NFPA, IFSTA Routine station safety Infection control Driver training OSHA hazmat as required	Routine station safety Infection control Driver training OSHA hazmat as required
Safety Committee in place?	Yes	No formal committee	No formal committee
Safety Officer appointed?	Yes	No formal committee	No formal committee
Wellness program in place?	No	No	No
Return to work process in place?	Yes	Yes	Yes
LIABILITY ISSUES			
General liability and umbrella coverage?	Yes	Yes	Yes
Personal property coverage?	Yes	Yes	Yes

OBJECTIVE FIVE- Personnel Management	*Ellington VFD*	*Crystal Lake VFD*	*Ellington Ambulance*
PERSONNEL POLICIES			
Human resource manager identified	Yes Chief performs role Membership committee is heavily involved in HR functions and aassiss the Chief	Chief performs role	President performs role
Personnel policies maintained	Yes, in department manuals	Yes, in department manuals	Yes, in department manuals Periodic review and update
Policies provided to members	Administrative policies provided Rules and regulations provided Operational guidelines provided	Administrative policies provided Rules and regulations provided Operational guidelines provided	Administrative policies provided Rules and regulations provided Operational guidelines provided
Regular paid/scheduled employees?	No	No	Yes
COMPENSATION			
Paramedic salary: enter amount in other			Tech/Driver: Base Pay- $7.25 to $10 per hour
EMPLOYEE BENEFITS			
Retirement			No
Medical Insurance			No
Dental Insurance			No
Life Insurance			No
Vision Insurance			No
Volunteers / Paid on call utilized?	Yes	Yes	Yes
VOLUNTEER BENEFITS			
Association memberships paid?	Yes	Officer associations, dues, etc	No
	Various association memberships provided specific to roles and responsibilities		

Volunteer/ P.O.C. compensation: enter rate information in other	Point system based on involvement in calls and training, avg $1200-1500 annual	Point-based incentive program; average $400-600 annually	Point-based incentive program; Average $500 to $600 annual
Volunteer Length of Service Awards, LOSAP	Annual contributions also based on point system accrual	Annual contributions also based on point system accrual	Yes Base on same point system
RECORDS			
Personnel records maintained	application retained historical records retained health & exposure records maintained	application retained injury and accident records retained health & exposure records maintained	application retained historical records retained injury and accident records retained
DISCIPLINE			
Policy established	Yes, written and clear	Not clear	Yes, written and clear
Appeal process provided	Yes		Yes
COUNSELING			
Critical incident stress debriefing, CISD	Yes, regional program	Yes, regional program	Yes, regional program
Employee assistance program, EAP	Yes	No	Yes
RECRUITMENT PROCESS			
Physical standards established	None	None	None
Aptitude or knowledge standards established	None	None	None
Medical exam required	Yes, by personal physician Yes, by department physician NFPA 1582 compliant Can use personal physician as option, but must use dept criteria	Yes, by department physician option for use of personal physician; not NFPA 1582	Yes, by personal physician Yes, by department physician Option to use personal physician
MEASURING, PROMOTION PROCESS			
Periodic competence testing	Yes	None	Yes
Periodic performance evaluations	None	None	None
Promotional testing	None	None	None
HEALTH AND SAFETY			
Medical standards established	Yes, NFPA 1582 utilized	None	None
Periodic medical exam	Yes, mandatory at department expense NFPA 1582 utilized	Yes, mandatory at department expense	None

OBJECTIVE SIX- Staffing	*Ellington VFD*	*Crystal Lake VFD*	*Ellington Ambulance*
ADMINISTRATION AND SUPPORT STAFF			
Career Chief	0	0	0
A/S – Volunteer Chief	1	1	1 (President)
A/S – Volunteer Assistant / Deputy Chiefs	1 Assistant, 2 Deputy Chiefs	1 Assistant, 1 Deputy	1 Vice President
A/S – Career Fire Marshal / Division Chiefs	1 part-time Town Fire Marshal	1 part-time Town Fire Marshal	0
A/S – Career Assistants & Clerical	10 hours part-time clerical paid	0	2 part-time clerical
A/S – Volunteer Training Officers	1 Deputy Chief, 5 Company Officers do dual duty in training	1	1
OPERATIONS STAFF			
Career Shift / Area Commanders	0	0	0
Volunteer Shift / Area Commanders	Duty roster for volunteer officers.	0	0
OPS – Volunteer Captains	2		0
OPS – Volunteer Lieutenants	3	2	0
OPS – Other Company Officers	1 Safety Officer		0
OPS – Part-time Medical Only	0	0	6
OPS – Volunteer/POC Firefighters	35	14	
OPS – Volunteer/POC Medical Responders	1	0	44
Volunteer / P.O.C. personnel utilized?	Yes	Yes	Yes
Volunteer/POC schedule	Voluntary on-call Voluntary station duty	Voluntary on-call Voluntary station duty	Voluntary on-call Call duty / squad assignments Voluntary station duty
Volunteer/POC FF Residency requirements	Within 2 miles of district or employed in district	None- at discretion of Board	Live within town or must be in town during duty assignment
Volunteer/POC assigned by:	No specific assignment	No specific assignment	No specific assignment
Volunteer/POC alarm notification system	Voice paging	Voice paging	Voice paging
	Alphanumeric paging	Alphanumeric paging	

Services provided by volunteer/POC personnel	Fire suppression EMS first response Extrication Specialized rescue Public education Hazardous materials response	Fire suppression EMS first response Extrication Specialized rescue Public education Hazardous materials response	EMS first response Public education Hazardous materials response
RESPONSIBILITIES			
Routine responsibilities assigned by:	areas of personal interest	areas of personal interest	areas of personal interest
	expertise	expertise	expertise
Special duties assigned by:	position areas of personal interest expertise	position areas of personal interest expertise	position areas of personal interest expertise
Committees and work groups	Apparatus and equipment EMS quality management Training Safety Facility development Public relations / education Membership, house, SCBA, awards and incentives, policy, purchasing spec, finance	Apparatus and equipment Training Safety Public relations / education Membership, welfare committee	Apparatus and equipment EMS quality management Membership, policy committee.
OBJECTIVE EIGHT- Service Delivery Systems	***Ellington VFD***	***Crystal Lake VFD***	***Ellington Ambulance***
NOTIFICATION SYSTEMS			
Emergency dispatch agency	Regional center	Regional center	Regional center
Incoming calls	Enhanced 9-1-1 PSAP	Enhanced 9-1-1 PSAP	Enhanced 9-1-1 PSAP
Dispatch method	Station announce only	Station announce only	Station announce only
hardware used	Orbicon consoles, Windows NT-based hardware. Currently still in bid process.	Orbicon consoles, Windows NT-based hardware. Currently still in bid process.	Orbicon consoles, Windows NT-based hardware. Currently still in bid process.
CAD software used	Software being decided now, in bid process.	Software being decided now, in bid process.	Software being decided now, in bid process.
Number of CAD back-up response layers	8 or more	8 or more	8 or more
Method of apparatus/station notification	Encoded station radio alert	Encoded station radio alert	Encoded station radio alert
Method of personnel notification	Voice pagers Alphanumeric pagers- auto by CAD	Voice pagers Alphanumeric pagers- auto by CAD	Voice pagers Alphanumeric pagers- auto by CAD

EMD used?	No. Training underway	No. Training underway	No. Training underway
Geographic database used?	Used, updated manually Includes hydrant locations Includes special hazard locations	Used, updated manually Includes hydrant locations Includes special hazard locations	Used, updated manually Includes hydrant locations Includes special hazard locations
Dispatch time performance standards adopted?	No formal standards	No formal standards	No formal standards
Emergency communications system	Conventional VHF or UHF	Conventional VHF or UHF	Conventional VHF or UHF
Number of channels licensed	Six in-system channels plus off-system mutual aid links.	Six in-system channels plus off-system mutual aid links.	Six in-system channels plus off-system mutual aid links.
System queuing experience?	Not Applicable- conventional system	Not Applicable- conventional system	Not Applicable- conventional system
System redundancy	Back-up power Back-up transmitters Back-up consoles Redundant site	Back-up power Back-up transmitters Back-up consoles Redundant site	Back-up power Back-up transmitters Back-up consoles Redundant site
STATIONS AND APPARATUS			
Total number of stations	1	1	1
Number of stations staffed part-time	0	0	1- 6am to 6pm weekdays
Number of stations on-call only	1	1	
Apparatus response-ready checked	After each movement	After each movement	After each movement
Chassis preventive maintenance	Bi-annually	Bi-annually	Quarterly
Pump preventive maintenance	Bi-annually	Bi-annually	NA
Maintenance performed by	Department personnel Heavy work contracted to outside vendor Pump work contracted to fire equipment vendor EVT certifications	Third-party maintenance vendor Pump work contracted to fire equipment vendor EVT certifications	Third-party maintenance vendor
Mechanic on-call 24 hours?	Yes	Yes	Yes
Maintenance parts availability	Disposable items only	Disposable items only	Disposable items only
	Local stock available in area	Local stock available in area	
Annual pump flow testing conducted	Yes	Yes	NA
Annual hose testing conducted	Yes	Yes	NA
Annual ladder testing conducted	Yes	Yes	NA

STANDARD RESPONSE PROTOCOLS			
Standard response of apparatus by call-type	Yes	Yes	Yes
Standard response of personnel per apparatus	No	No	Yes
Typical company manpower at exit	Four personnel	Two personnel	Three personnel
Turnout time standards adopted?	No	After second re-tone, mutual aid called; approx 6 minutes total	No
Total response time performance goals adopted?	No	No	No
Simultaneous incident cover systems	Automatic station move-up Station move-up by IC Manpower paging for volunteers Mutual aid utilized	Automatic station move-up Manpower paging for volunteers Mutual aid utilized	Manpower paging for volunteers Mutual aid utilized
RESPONSE PREPARATION			
History of losses analyzed?	Yes	No	NA
Major hazards identified and mapped?	Yes	No	No
Hydrants mapped?	Yes, no main sizes or flows	No	NA
Alternate water points mapped?	Yes	No	NA
Maps in all vehicles?	Yes, including volunteers	Yes, including volunteers	Yes, including volunteers
Duty Officer system in place?	Yes	Yes	No
Hydrants and water points maintained?	Cleaned and lubricated Flushed	Marked Inspected regularly	NA
ICS utilized?	Always	Always	Major incidents only
Accountability system utilized?	Always	Always	No
Thermal imaging use	All first-due companies	All first-due companies	NA
EMERGENCY MEDICAL SERVICES			
Medical response service level	First responder only BLS Basic Life Support, EMT's Non-transport only	First responder only BLS Basic Life Support, EMT's Non-transport only	BLS Basic Life Support, EMT's Transport Non-emergency transfers
Medical Director retained	Yes	Yes	Yes
Medical protocols utilized	Yes	Yes	Yes

Automatic defibrillator use	Medics/rescues	Medics/rescues	Medics/rescues
	First-due engines		
Formal EMS quality assurance "QA" program?	Yes	Yes	Yes
EMS fees charged?	No	No	Yes
BLS transport fee			get from info
Current collection rate			need from billing company
Infection control officer appointed?	Yes	Yes	Yes
OBJECTIVE NINE - Training Programs			
TRAINING STANDARDS			
Formal training provided consistently on:	ICS Accountability procedures Safety procedures Structural firefighting Wildland firefighting EMS skills Hazmat Vehicle extrication Defensive driving Special rescue	ICS Accountability procedures Safety procedures Structural firefighting Wildland firefighting EMS skills Hazmat Vehicle extrication Defensive driving Special rescue	ICS Safety procedures EMS skills Hazmat Defensive Driving Special rescue
Recruit training provided/required prior to response:	Mandatory basic safety	Mandatory basic safety	Mandatory basic safety
	Conn-OSHA	Conn-OSHA	
Minimum training levels for each position NFPA compliant?	Yes	Yes	EMS Certification compliant
Consistent officer training provided?	Yes	Yes	No
TRAINING ADMINISTRATION			
Training program director appointed?	Yes	Yes	Yes
Number of certified instructors in-house?	11	2	
Company-level officers formally trained in instructional techniques?	Yes	No	No
Clerical assistance routinely available?	No	No	No
Training program goals and objectives identified	Yes	Yes	Yes
Sufficient software and data support for program?	Yes	Yes	Yes

TRAINING RESOURCES			
Training facilities available	Formal classrooms Sufficient standard AV equipment Main training library Props Tower;regional shared Drill ground area;stations	Formal classrooms Sufficient standard AV equipment Main training library Props Tower;regional shared Drill ground area;stations	Formal classrooms Sufficient standard AV equipment Main training library Props Drill ground area;stations
Standard manuals utilized or adopted?	IFSTA/NFPA	IFSTA/NFPA	Brady, etc.
Lesson plans utilized regularly	Usually	Rarely	Rarely
TRAINING METHODOLOGY			
Estimated ratio of manipulative to classroom time:	60/40	60/40	50/50
Annual hours of training presented/available:	1776.3	1899	
Night drills held?	Monthly	Monthly	NA
Multi-agency drills held?	Rarely	Rarely	Rarely
Regional disaster drills conducted?	Annually	Annually	Annually
Number of members applying for NFA attendance previous year	0	0	NA
Minimum physical ability testing for existing members?	Never	Never	Never
Minimum skill competency testing for existing members?	Never	Never	Never
Post-incident analysis sessions conducted?	All "working" incidents	All "working" incidents	Rarely
Safety officer used for all manipulative sessions?	Yes	No	No
TRAINING RECORDS			
Individual training files maintained?	Yes, computerized	Yes,computerized	Yes,computerized
All company-level training sessions recorded and filed?	Yes, computerized	Yes, computerized	Yes, computerized
Training equipment inventoried?	Yes	Yes	Yes
Check-out system on training materials?	No	No	No
TRAINING PROGRAM PRIORITY			
Adequacy of training program budget?	Mostly adequate	Mostly adequate	Mostly adequate
Adequacy of training facilities?	Mostly adequate	Mostly adequate	Mostly adequate

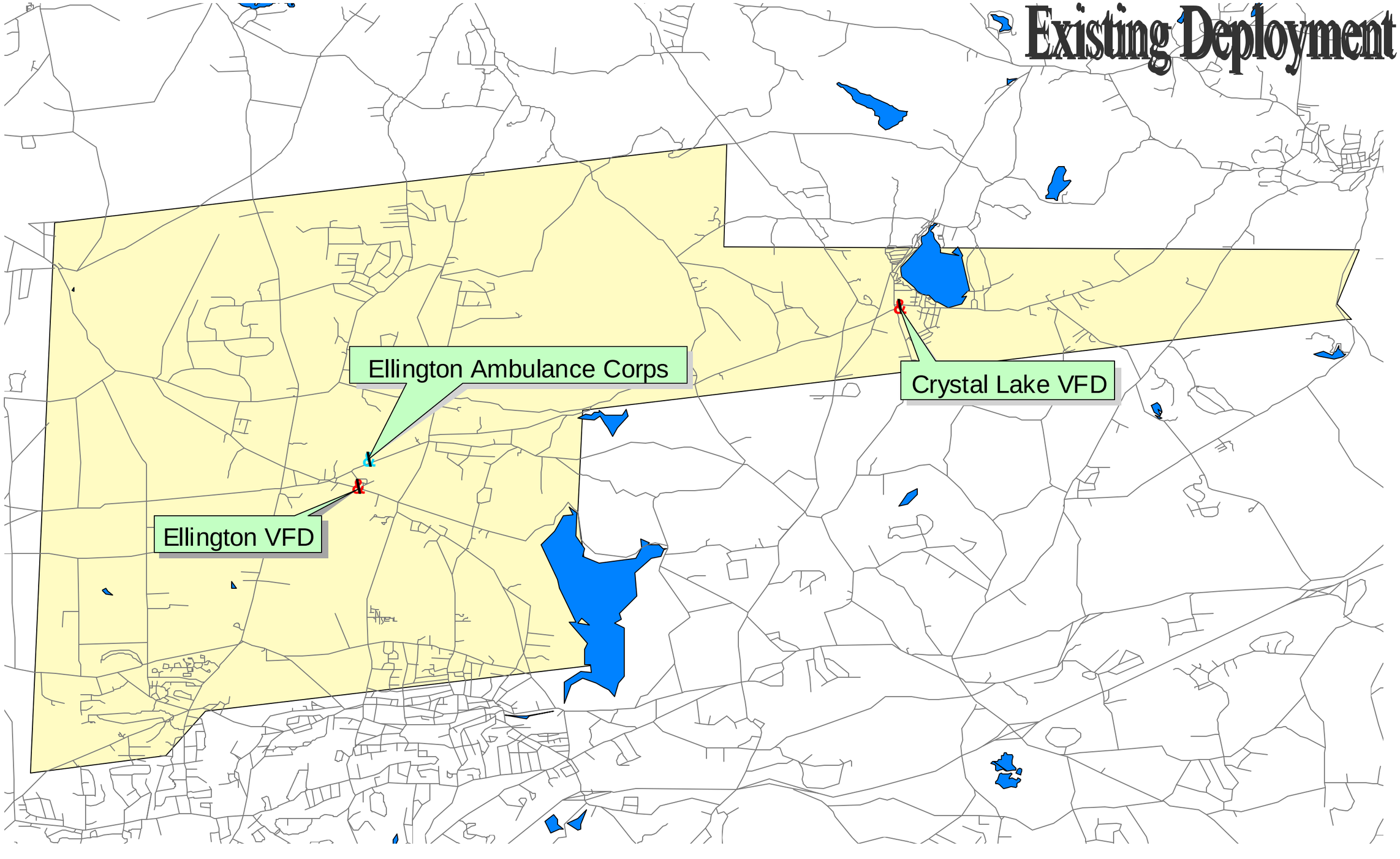
Annual training report produced?	Yes	Yes	Yes
OBJECTIVE TEN- Fire Prevention			
CODE ENFORCEMENT PROGRAM			
Inspection frequency for medium-risk occupancies:	City/State	City/State	NA
Inspection frequency for low-risk occupancies:			
Formal citation process in place?			
Inspections and occupancy information computerized?			
Number of FTE's devoted to inspection program	Part time	Part time	NA
Company-level inspections conducted?	No	No	NA
Fee structure in place for inspection / plan review?	No	No	NA
PUBLIC EDUCATION			
Public Education Officer assigned?	Yes	No	No
Topics included in program	LNTB Risk Watch EDITH Fire Safety "Truck Day"	LNTB Risk Watch EDITH Fire Safety "Truck Day"	
Publications available to public?	Yes	Yes	Yes
Bilingual information available?			
Wildland interface education offered?	No	No	No
FIRE INVESTIGATION			
Investigation services provided	City/State Initial scene control & reporting	City/State Initial scene control & reporting	NA
Arson investigation/awareness training provided	Yes	Yes	NA
Person responsible for investigations	City/State	City/State	NA
Local/Regional Investigation Team available?	Yes	Yes	NA
Formal process for handling juvenile suspects?	Yes	Yes	NA
Liaison with law enforcement?	Yes	Yes	NA

Scene control practices in place?	Yes	Yes	NA
Evidence collection process in place?	Yes	Yes	NA
Investigation practices/procedures follow NFPA 921?	Yes	Yes	NA
Juvenile fire setter program offered?	Yes	Yes	NA

APPENDIX B- MAPS

The following maps are lager versions of those included in the emergency services ***agency evaluation***.

Existing Deployment



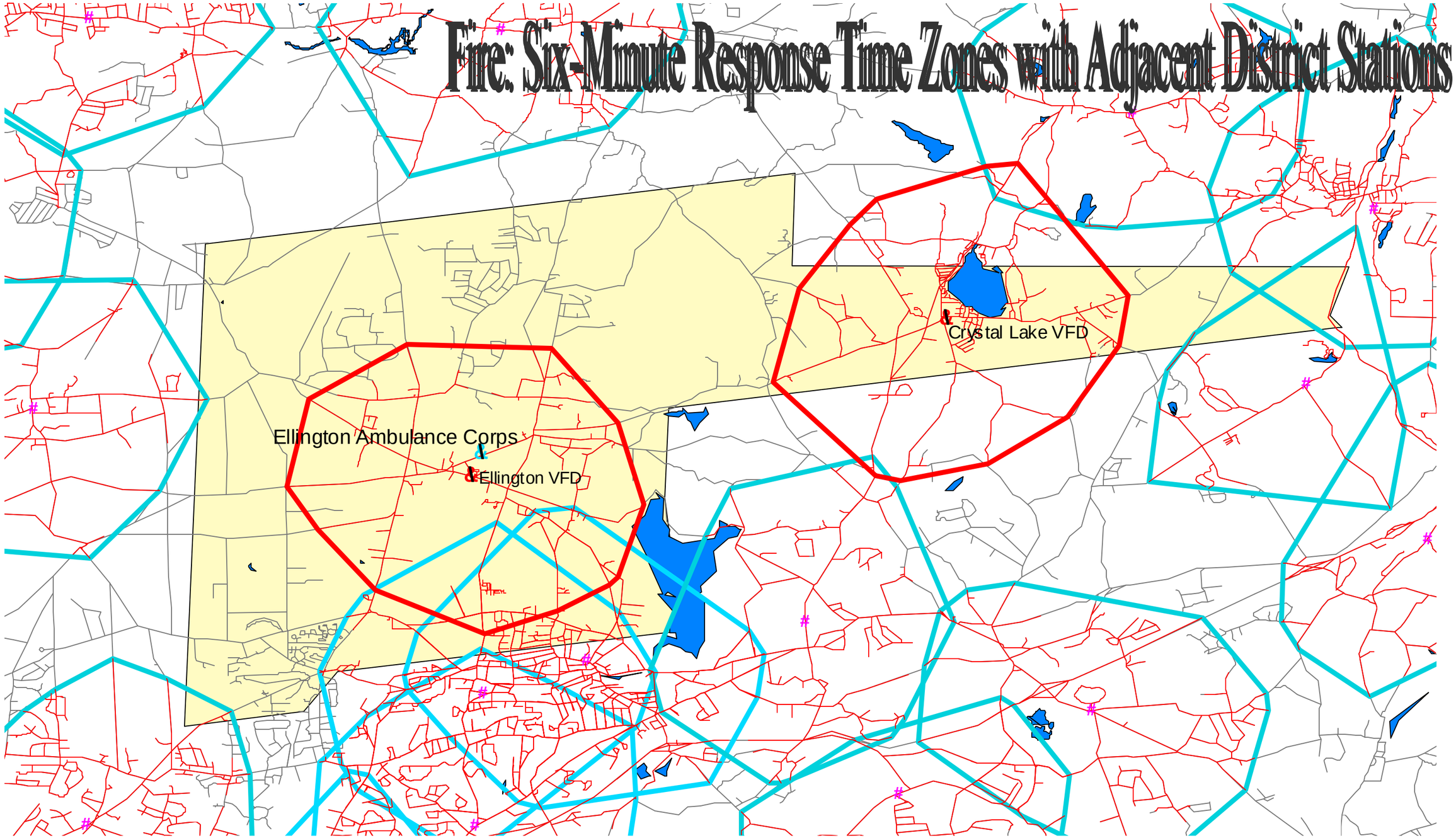
Fire: Six-Minute Response Time Zones

Crystal Lake VFD

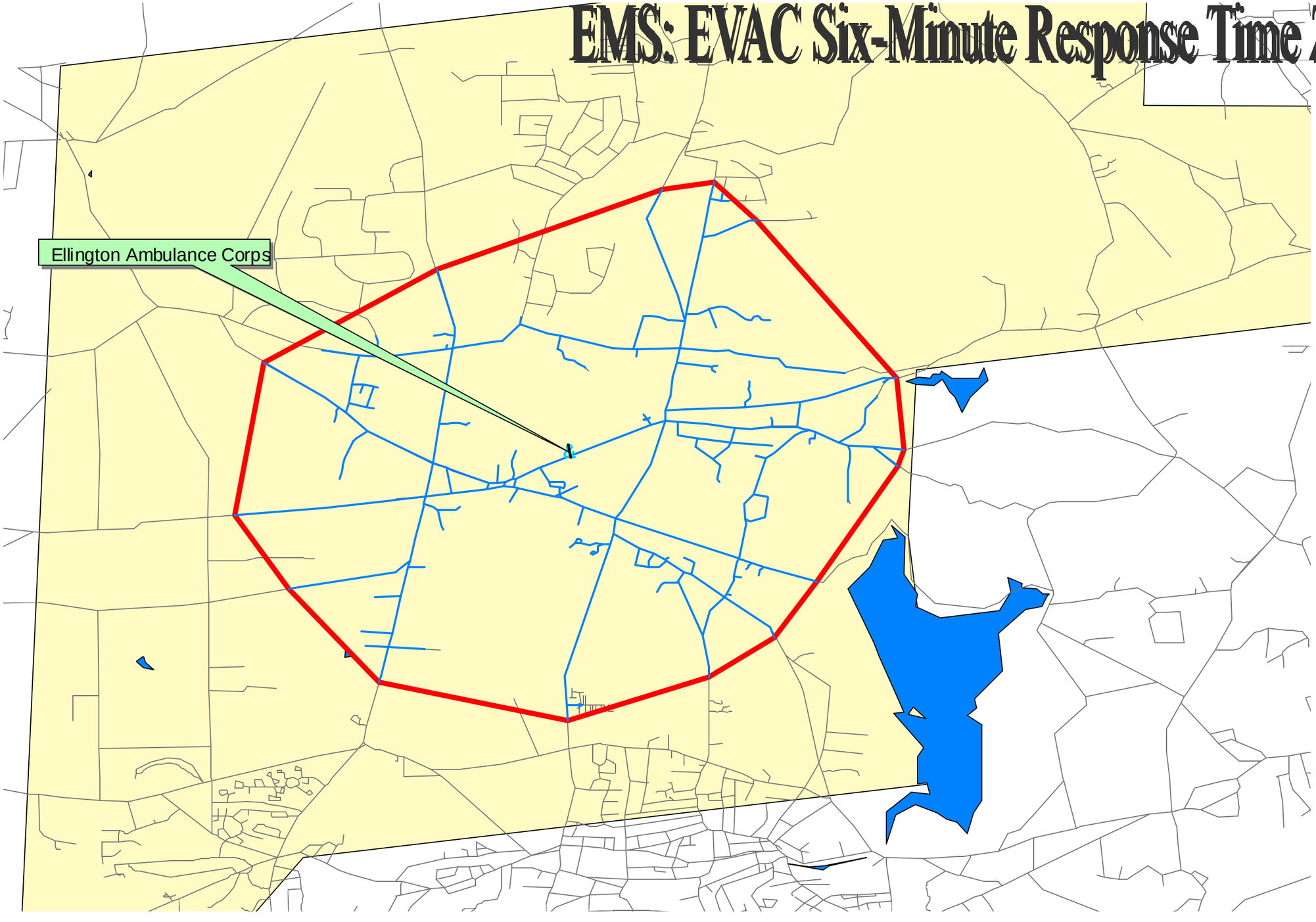
Ellington Ambulance Corps

Ellington VFD

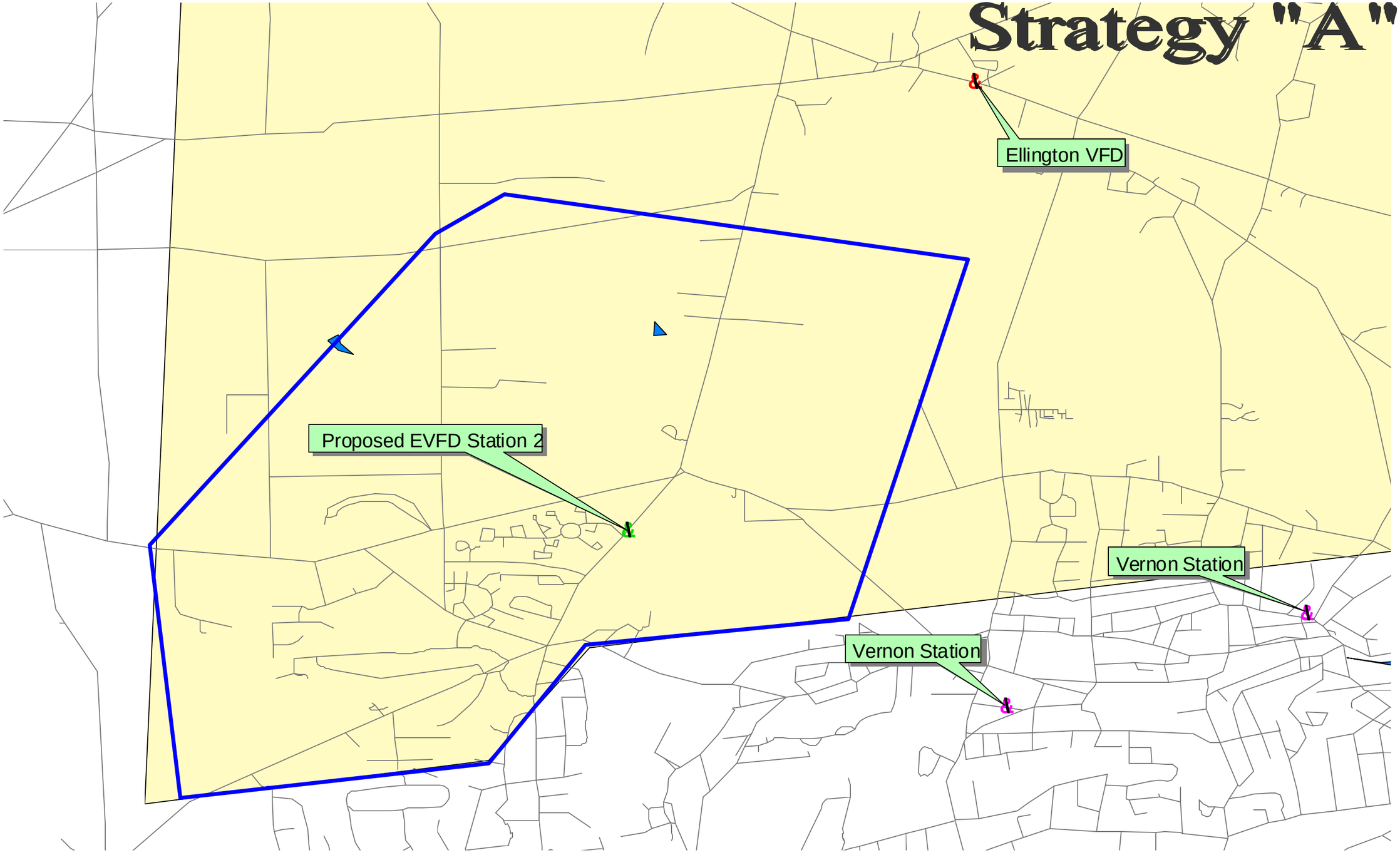
Fire: Six-Minute Response Time Zones with Adjacent District Stations



EMS: EVAC Six-Minute Response Time Zone



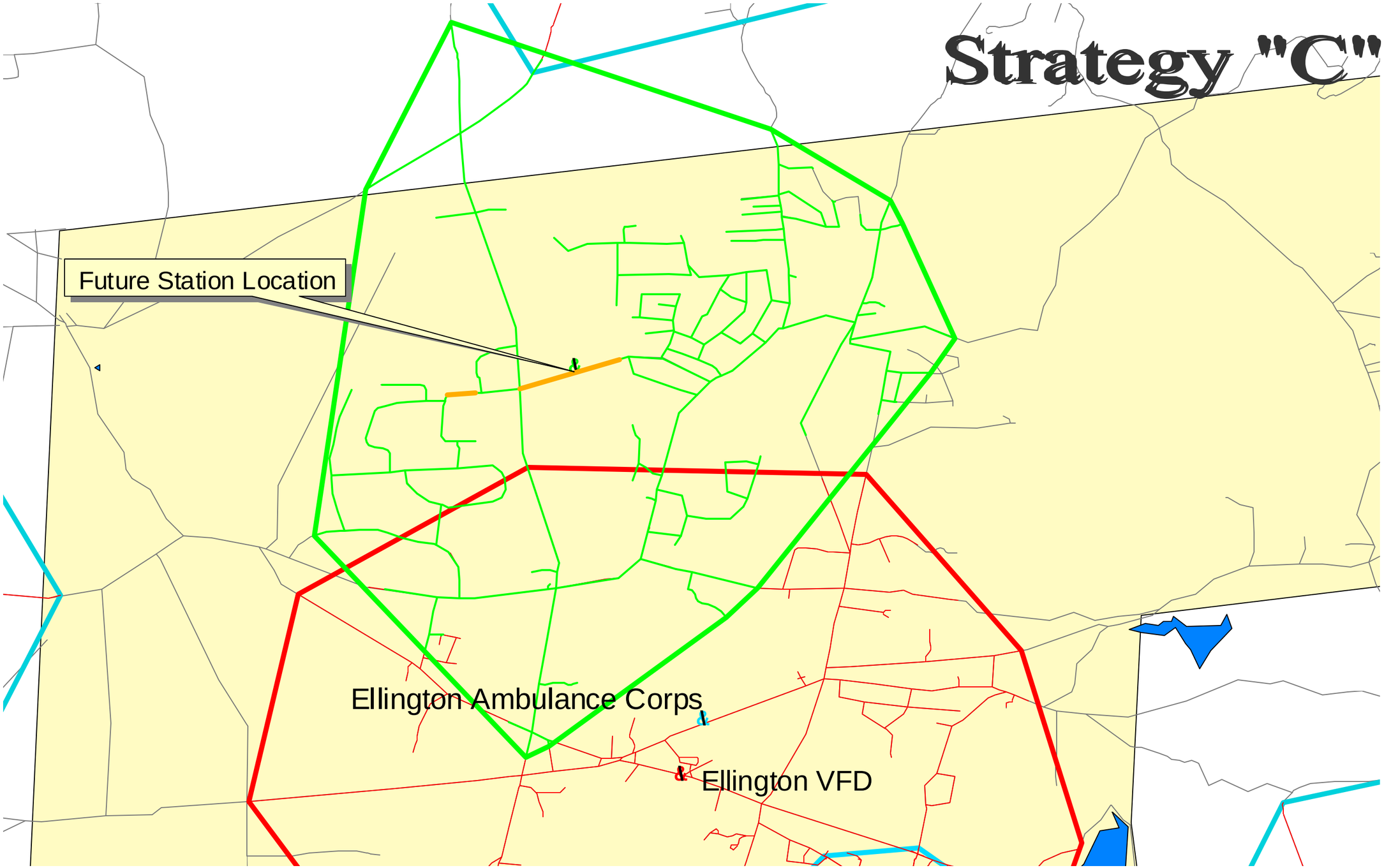
Strategy "A"


Ellington VFD
Proposed EVFD Station 2
Vernon Station
Vernon Station

Strategy "B"


Ellington VFD
Strategy B EVFD Station 2
Vernon Station
Vernon Station

Strategy "C"


Future Station Location
Ellington Ambulance Corps
Ellington VFD

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